A HOSPITAL HIVE MIND?

A Critical Realist Analysis of a High-Performing Hospital

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Submitted in fulfilment of the requirements for

the degree of Doctor of Philosophy

University of Tasmania

July 2020

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The research associated with this thesis abides by the international and Australian codes on human and animal experimentation, the guidelines by the Australian Government's Office of the Gene Technology Regulator and the rulings of the Safety, Ethics and Institutional Biosafety Committees of the University. The study was approved by the Tasmania Health and Medical Human Research Ethics Committee (EC00337), ethics approval reference number: H0014592.

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ACKNOWLEDGEMENTS

To feel thankful is a gift in itself. It is a gift of memory – touching on each of the moments that have come before, in which we have found ourselves humbled by the offerings of others. In the context of this thesis, offerings have been made in various forms: perspective, insight and knowledge; patience and trust; acts of service; gifts of wealth; and hours of drudgery, wading through page after thesis page.

First, I would like to thank my PhD supervisors: Distinguished Professor Gregory Peterson (University of Tasmania), Dr Karen Ford (Royal Hobart Hospital and University of Tasmania), Mr Craig Quarmby (Hobart Medical Specialists, Royal Hobart Hospital and University of Tasmania) and Associate Professor Ann Torugsa (Mahidol University and University of Tasmania). I am greatly indebted to each of my supervisors for their dedication and commitment to the project, their patience, trust and support at each stage of the process, and for the gifts of perspective that have shaped and refined the thesis throughout. In particular, I offer my deepest gratitude to my primary supervisor, Gregory Peterson, whose commitment and support throughout the process has been unwavering. I am continually in awe of Greg's capacity to see both the bigger picture and the smallest detail, and the generosity with which he offers his time. I am also very grateful to Distinguished Professor James Vickers, and the late Associate Professor Erica Bell, who provided early and valuable contributions to my supervision.

In addition to formal supervision, I was immensely fortunate to receive the support and mentorship of my mother, Emeritus Professor Dorothy Scott (University of South Australia and University of Melbourne) and my uncle, Emeritus Professor Graeme Smith (Monash University and Monash Health). Early conversations with my mother were instrumental in framing the study as a broad, multi-theory, multi-factor, and context-sensitive investigation of hospital performance and performance improvement, and her advice and edits throughout the process were incredibly valuable. Under the guidance of my uncle, I feel extremely fortunate to have had the opportunity to regularly peel away the surface layer of empirical observation, theory, and introspective reflection. We regularly met, in person or by phone, over what must have been hundreds of cups of tea to delve deeply into the nature of reality and how we might come to know reality, and the philosophical and practical

implications for scholarship. I am aware that without this ongoing discourse with my uncle, the thesis would have resulted quite differently, likely lacking much theoretical and interpretive depth. Words cannot adequately express my gratitude.

I am also very appreciative of the advice I received from various experts and scholars with whom I was lucky enough to consult during the early stages of my candidature: (*in order of consultation*) Professor Andrew Pettigrew (Oxford University); Dr Alireza Nazarian (University of West London); Dr Sara McAfferty (Newcastle University); Professor Naomi Fulop (University College London); Professor Trisha Greenhalgh (University of London); Mr Jonathan Bamber (Health Foundation); Professor Ewan Ferlie (Kings College London); Professor Kiell Arne Rovick (University of Northern Norway); Dr Hege Anderson (University of Northern Norway); Dr Svante Lifvergren (Chalmers University); Professor John Ovretveit (Karolinska Institutet); and Professor Mats Brommels (Karolinska Institutet); Professor Stephen Osborne (University of Edinburgh); and, Dr Nick Turnbull (University of Manchester). In particular, my sincere thanks go to Professor Andrew Pettigrew who very generously gifted several follow-up consultations that were invaluable during those early stages of study design; and to Professor John Ovretveit, whose many hours of advice, before, during and after the 16th annual Quality Improvement Research Network (QIRN) meeting greatly strengthened my analytic approach. Many thanks also to Professor Stephen Osborne and Dr Nick Turnbull for their feedback and advice regarding the 'theory-borrowing' content presented within the thesis Appendices and put to use in Chapter 9. Additionally, I offer deepest thanks to my thesis examiners, Professor Anneke Fitzgerald (Griffith University) and Professor Stephen Campbell (Manchester University) for their kind words and highly comprehensive examination reports.

The study simply would not have been possible without the generous assistance of Alfred Health. A special thanks to Professor Andrew Way and the Executive of Alfred Health for approaching the study with open arms and an open mind, allowing me to scratch beneath the surface of the organisation to work out how things 'tick'. I am greatly indebted to the 16 anonymous interviewees who participated in the study, offering the many valuable insights and observations that came to form the 'hive model' presented herein. My thanks also to Lisa Vandersluys, Executive Assistant to the CEO, for scheduling research interviews and following up on my many requests. And a special thanks to Peter Frawley, the Archivist for Alfred and Caulfield hospitals, who facilitated my access to the archives and was most helpful

in hunting down a number of elusive annual reports and staff newsletters. Additionally, I offer my deepest gratitude to the many doctors, nurses, allied health workers, support staff and administrators of Alfred Health, who, during this unprecedented period of Coronavirus Covid-19 pandemic, are bravely risking their lives to help those most vulnerable in our community. From afar, it would seem the 'hive purpose' – to help those in need – is unwavering under the pressure of pandemic.

I was fortunate to receive both a Commonwealth-funded Research Training Program (domestic) scholarship and an elite research scholarship 'top-up' as part of the Clinical Redesign Program hosted by the School of Medicine, University of Tasmania (also funded by the Commonwealth Government, via the Tasmanian Health Assistance Package). I am thankful to many of my colleagues and peers at the University of Tasmania. Although it is not feasible to name them all, I offer a special thanks to: Dr Jim Stankovich who assisted with the ethics application associated with the study; Associate Professor Nuri Güven who helped screen a German language article as part of the literature review; Research Librarian, Heather Mitchell, for her unceasing patience and Endnote expertise; and my Graduate Research Coordinators, Bruce Lyons and Stuart Ferguson, for their patience and advocacy throughout.

The final months of my candidature were financially supported by the gift of my second cousin, 'Aunty' Jan Tourrier, who passed away in December 2017. Jan is deeply missed by our family, and I am immensely grateful to Jan for her generosity and support. Each of my immediate family members: my father, John Pittman, and his partner, Fiona Martin; my mother, Dorothy Scott, and her partner, Alan Clayton; my brother, Owen Pittman and his partner, Caroline Plunkett; my uncles Graeme Smith and Juan Davila; offered both intellectual stimulation and immense kindness throughout this research marathon. Many important research revelations were drawn out during discussions over the dinner table, and I feel truly privileged to have access to such brilliant and probing minds.

There are an untold number of friends and loved ones with whom I have chatted and bounced around ideas relevant to the thesis, or who have provided support in one form or another. I am grateful to each and every one of you. I feel especially grateful to Jo Guess, who, time and time again, has provided me with a soft landing when my small world had seemingly fallen apart. My sincere gratitude to Jane and Michael Pervan, whose friendship has proven a great gift in my life, and whose combined intellectual prowess has continually deepened my thinking and opened my mind. To Finn Seccombe, dear friend, I will always be

filled with gratitude. Throughout this tough slog – both academically, but also personally – I had a comrade by my side. No matter the ill winds that may have been blowing at the time, whatever problem encountered, scholarly or practical, Finn would faithfully enter my world to help me solve it: the deep thinker; the design mind; the tender-hearted friend. To Olly and Elsie Seacroft (and little Ponyo), I thank you for your unceasing patience and for the gift of your love. To Maxine, my niece, thank you for your cheeky distractions. And finally, to my little Peregrine Falcon, I owe you everything.

DEDICATION

May the fruits of our collective scholarly labours be of benefit to all.

This thesis is dedicated, with immense gratitude, to the honeybee;

and with tremendous hope, to all who have and will require care during their lifetimes.

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LIST OF ABBREVIATIONS

CEO	Chief Executive Officer
CVF	Competing Values Framework
E&TC	Emergency and Trauma Centre
HRM	Human Resource Management
IOM	Institute of Medicine
IR	Implementation Research
IS	Implementation Science
KM	Knowledge Management
NEAT	National Emergency Access Target
NEST	National Elective Surgery Target
NPM	New Public Management
OECD	Organisation for Economic Co-operation and Development
RBV	Resource-Based View (of the firm)
WHO	World Health Organisation
TQC	Timely Quality Care (program)
VMO	Visiting Medical Officer

ABSTRACT

In the context of rising demand for health care, growing clinical complexity, and increasing rates of medical intervention, hospitals and health systems around the world are under strain. As pressures on health systems grow, aspects of performance failure are progressively revealed and compounded. Health services, '…perceived to be inaccessible, disease-oriented, inflexible, disjointed, error-prone, and inconsistent, and to be delivered by overworked, unmotivated staff' (Greenhalgh et al. 2009), are not easily improved. This thesis sought to examine public hospital performance and the ways in which hospital performance may be improved, by conducting an in-depth case study of Alfred Health, a high-performing hospital network, located in Melbourne, Australia.

Although there is a reasonable volume of research and scholarly writing on the topic of hospital performance and performance improvement, the state of knowledge is poor. Theoretical understandings are often criticised as rudimentary and overly-simplistic, and empirical evidence is highly contested and largely inconclusive. Two literature reviews informed the development of research aims and questions for this study. The first review surveyed the entire spectrum of theories and explanations of relevance to hospital performance, and the second assessed the state of empirical evidence in support of those theories. A key finding of the two reviews was that the literature on hospital performance tends to be deeply splintered along disciplinary and theoretical lines. As scholars have sought to test the veracity of one isolated explanation for hospital performance (e.g. a funding instrument, or a policy change, or organisational structure, or leadership, or a particular improvement strategy) they have generally missed the significance of the dynamic interactions between each of these elements at play. As suggested here, there is little utility in understanding one or more organisational elements (splinters) deeply, without also understanding how altering those elements might influence the entire ecology of the system.

This study, therefore, was designed to both deepen and broaden knowledge and understanding of public hospital performance and performance improvement. Adopting a critical realist perspective, the research was driven by an overarching pragmatic goal to contribute to public benefit as much as to contribute to the academic corpus. In particular, the study aimed to explore how and explain why various environmental, organisational and

strategic factors came to influence the performance trajectory of Alfred Health, a hospital network that appeared to have consistently improved performance over several decades. Two research questions guided the in-depth case study:

1. What were the key contextual conditions and organisational factors that gave rise to Alfred Health's trajectory of high performance and sustained performance improvement?
2. How and why did these key contextual conditions and organisational factors come together to produce this result?

Documentary and interview data were collected from the case site, eliciting information and prompting reflection on and explanations for the organisation's performance trajectory over an approximate 30-year period. This particular timeframe for study was selected as it corresponded with a severe 'jolt' within the organisation's history: a near closure of The Alfred Hospital during the mid-1990s. Nineteen interviews were conducted and were subject to thematic analysis, drawing on Braun and Clarke's thematic analysis method, in combination with critical realist abductive and retroductive modes of inquiry.

A key finding of the empirical study was that Alfred Health seemed to have developed an alternative social structure to that of the traditional hierarchy. This social structure is best described as a heterarchy. As observed in some eusocial species (e.g. honeybees), heterarchies function by continually redistributing power to the members of the social group that are best informed or positioned to use that power through their decisions or actions. That is, although hospital administrators might be well-placed to make decisions regarding more global aspects of the organisation, such as: the overarching organisational structure, financial model, or recruitment and employment policies; administrators often lack the necessary knowledge to adequately frame problems or devise solutions affecting the clinical or departmental coalface. A more fluid (yet nonetheless structured) exchange of decision-making power appears to have provided Alfred Health with a solution to this dilemma, helping to facilitate organisational improvements that could be enacted relatively quickly, and sustained over time.

Research findings identified the organisational components and factors that appeared to facilitate a more heterarchical exchange of power throughout Alfred Health. As theorised

by ‘the hive model’ these organisational components included the presence and function of four distinct organisational cultural attributes, three routinised feedback loops, and two managerial tendencies. That is, the social structure of Alfred Health seemed to operate as a relatively ordered pattern of relations and routine practices, held together by a common set of values and attitudes, which in concert, enabled the organisation to learn, adapt, grow, improve and to do so in a way that maintained a homeostatic balance.

Evidence for the development and origin of the theorised ‘hive-like’ improvement capacities and organisational components pointed to a combination of both environmental factors (e.g. government reforms, availability of resources, demographic or technological changes) and strategic efforts (e.g. changes to organisational structure, the active pursuit of new opportunities for learning or innovation etc.). According to analysis, what seemed to matter most was the interactive and creative match between the two. Viewed from the perspective of power and agency, this study argued that successive leaders of Alfred Health took steps to influence culture in order to (indirectly) influence performance. And importantly, this was achieved through a somewhat flexible, opportunistic and, where needed, insulative approach to shifts in the external environment.

Further, findings from the analysis indicated that the theorised hive-like tendencies evolved in a series of non-linear (dynamic, somewhat vacillating, partially overlapping and mutually reinforcing) evolutionary steps. That is, some of the hive cultural attributes and feedback loop routines appeared to be in use before others, and a theorised path-dependent relationship between these earlier and later organisational components was proposed. Intra-organisational trust was identified during the analysis as a key rate-limiting (or rate-facilitating) factor that allowed for the progression from one evolutionary level to another more sophisticated level.

A comparison of the research findings with existing theory and empirical knowledge concluded that the hive model and theory was compatible with, and provided support to, most of the existing relevant theories available within the scholarly literature. However, the hive model was found to go beyond the span of existing knowledge, particularly in the way in which empirical knowledge was integrated to form a whole-of-organisation explanation for performance. For example, although the academic literature commonly draws a relationship between a less hierarchical organisational structure and higher performance, what appears to be absent from scholarly work is an intact theorised model for the social structure that had

replaced hierarchy. The hive model, therefore, offers a novel empirical contribution to the literature by describing the heterarchical social structure both analytically (e.g. by identifying the key components of the model) and synthetically (e.g. by charting the functional and dynamic mechanisms that allow these components to work at a systems level). Strong (although somewhat partial) alignment between the hive model and the complexity lens was an important finding, and particularly useful for supporting an overarching synthesis of knowledge, thus bringing together various existing theories towards some form of theoretical pluralism.

Various study limitations were noted, including methodological limitations and possible researcher biases. In particular, it was apparent that the necessity to develop a novel critical realist approach to thematic analysis rendered the study vulnerable to a degree of error. In contrast, this also provided opportunities for methodological innovation, in turn, forming new contributions to the critical realist literature. Further, the minimal use of research delimitations was also a point of both strength (allowing new questions to be explored and existing knowledge to be synthesised) and weakness (risking a lack of depth) for the research. Recommendations for future research included: conducting a series of abductive hospital case studies that followed on from the current study, including the addition of the hive model to the set of deductive theories considered; and, subsequently, developing an instrument to 'test' refined theory upon a larger pool of hospital sites, via the fuzzy-set comparative case study analysis method. Procedural recommendations for researchers who may wish to conduct a critical realist thematic analysis were provided, alongside a further methodological innovation which related to the critical realist notion of theoretical generalisability. That is, drawing on and synthesising the 'theory-borrowing' literature (ironically, borrowed from the management literature), a decision-support tool was developed and presented, to help policy-makers and hospital administrators consider which components of the hive model may be applicable to their own environments, and to support the possibility of localising the theory to suit their respective contexts.

My intention is not to replace one set of general rules by another such set: my intention is, rather, to convince the reader that all methodologies, even the most obvious ones, have their limits.

– Paul Feyerabend (1993)

A pair of wings, a different respiratory system, which enabled us to travel through space, would in no way help us, for if we visited Mars or Venus while keeping the same senses, they would clothe everything we could see in the same aspect as the things of Earth. The only true voyage, the only bath in the Fountain of Youth, would be not to visit strange lands but to possess other eyes, to see the universe through the eyes of another, of a hundred others, to see the hundred universes that each of them sees, that each of them is.

– Marcel Proust (1993)

1 INTRODUCTION

> *The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being…*
>
> World Health Organisation Constitution (1946, pp. 8-10)

1.1 THE TOPIC OF RESEARCH

Somewhere between the principle and the practice of health care as a 'fundamental human right' exists a perfect storm. Although current generations are living longer than ever before (Bloom et al. 2015), our long, modern lives are often laden with chronic illness including 'lifestyle diseases' associated with poor diets, inadequate exercise and substance abuse (Prince et al. 2015). Medical discoveries and radical advances in clinical technology for diagnosis and treatment have heroically saved and sustained many lives; however, this is not without implications for populations as a whole, as the economies and socio-political climates of various nations have scrambled to keep pace with rapid social and technological change (Mendelson & Schwartz 1993; Nghiem & Connelly 2017). In much of the developed world, birth rates are declining, populations are ageing and the proportion of taxpayers who can contribute to the costs of universal (or insurance-based) health care systems are shrinking (Lee & Mason 2017). Health care providers are frequently asked to do more with less (Burke et al. 2014; Hurst & Williams 2012), and it is therefore not surprising to learn that in the context of rising demand for services, increasing clinical complexity,[1] and higher rates of medical intervention, health systems around the world are under strain and are often found lacking (Godbole, Burke & Aylott 2017; Kossarova, Blunt & Bardsley 2015).

It was not until the mid to late 1990s that researchers and policy-makers fully awoke to the issue of health systems and health care providers actively (albeit inadvertently) *causing* harm to patients, rather than simply patching up injury or illness after the damage had already

[1] The word 'complexity' is used here in the common form, roughly equating to the meaning of 'complicated' (Oxford English Dictionary 2010); whereas in this thesis, the term 'complexity' tends to be used within the context of complexity theory, as described in Chapter 2.

been done. That is, it came as somewhat of a shock when the US Institute of Medicine (IoM) published the first of their landmark reports *To Err is Human*, claiming that the scale of the issue was far greater than existing public perceptions would have comfortably accounted for:

> *… deaths due to medical errors exceed the number attributable to the 8th-leading cause of death [*in the United States of America*]. Institute of Medicine (2000).*

Following these early publications (Davis et al. 2002; Institute of Medicine 2001; Shortell, Bennett & Byck 1998; Vincent, Neale & Woloshynowych 2001; Wilson et al. 1995), research and evidence into the quality of health care provision rapidly snowballed. So too did government policy and interventions to coax or otherwise enforce health care providers to deliver higher standards of care (Arbuckle 2012; Stevens 2004; Yip et al. 2012). Despite nearly two-decades of effort, the threat of medical error was upgraded to 'the third leading cause of death in the US' (Makary & Daniel 2016). Similarly, the World Health Organisation (WHO) and the Organisation for Economic Co-Operation and Development (OECD) have also continued to issue concerns about the state of health care quality (OECD 2017). Hospitals, in particular, are regularly entangled in scandal as instances of substandard care arise and encounter public scrutiny (Butler 2002; Davies 2005; Faunce & Bolsin 2004; Francis 2010, 2013; Godbole, Burke & Aylott 2017; King 2017; Lehman 2019; Triggle 2013).

Success stories describing health services that have fundamentally and permanently improved their performance are uncommon (O'Connell et al. 2008b). Hospitals are overwhelmed by the many slow or failed attempts to improve, or they experience short-lived and unsustained successes (Andersen, Rovik & Ingebrigtsen 2014; Blumenthal & Kilo 1998; Greenhalgh et al. 2012; Landon et al. 2004; Mittman 2004; Mosadeghrad 2013). An emerging body of research exists that attempts to understand health care performance failure and the methods and conditions for performance improvement success; however, theoretical understandings are often rudimentary and overly-simplistic (Davidoff et al. 2015; Grol et al. 2007) and conclusive empirical evidence is sparse (Boyne 2006; Brand et al. 2012; Chaudoir, Dugan & Barr 2013; Grol et al. 2007; Hodgson, Farrell & Connolly 2007; Martin et al. 2012).

As examined in Part A of this thesis (particularly Chapters 2 and 3), current scholarly knowledge on the topic of hospital performance suffers from a number of key shortcomings. Scholarship is splintered, often into silos of single-factor explanations for performance (e.g. leadership, or culture, or funding model, or quality improvement intervention X or Y (Mick &

Shay 2014a)). Further, the role of 'context' has become a catch-all explanation for performance intervention failures (Bate 2014), but the nature of context is rarely defined, or operationalised, and research investigations into context have produced 'shopping lists' (Pettigrew 1985, p. 23) of variables without critical reflection or guidance as to how these variables come together to produce an outcome (e.g. Kaplan et al. (2010)). Although there is some interest in generating and examining multi-factor explanations for hospital performance (Brand et al. 2012; Dijkstra et al. 2006; Hoff et al. 2004; Mick & Shay 2014b; Oner et al. 2016; Sheaff et al. 2003; Taylor et al. 2015), our understanding of the interactions and interdependencies between various factors, theories and explanations, and how they come together to produce a particular outcome, remains somewhat rudimentary.

The end-users of research on the topic of hospital performance (policy-makers, hospital administrators, boards, and governments) have trouble using splintered evidence (Lavis et al. 2005; Mitton et al. 2007; Oliver et al. 2014; Sheaff et al. 2003). As argued here, decision-makers need to see more of the 'whole picture' in order to: respond to the complex and ever-changing set of competing factors and demands in their environments; appropriately prioritise and allocate resources amongst an array of possible performance-improving strategies or approaches, and in ways that are sensitive to their own specific environment and circumstance; and lastly, sequence their actions and strategies, attuned to the ways in which strategies may be co-dependent, requiring one action to be commenced or completed before another can take effect (Shojania & Grimshaw 2005). To summarise, as long as the research literature fails to address questions about *why* various factors influence performance, and *how* the system works as a whole rather than in parts, research knowledge may well continue to go unused by decision-makers.

1.2 OVERVIEW OF THE STUDY

The goal of this thesis is to deepen our knowledge and understanding of public hospital performance and performance improvement. In particular, this study aimed to explore how and explain why various environmental, organisational and strategic factors came to influence the performance trajectory of a high-performing hospital network: Alfred Health,

located in Melbourne, Australia.[2] In-depth case studies allow for the refinement of existing theory or the development of new theory. This is a necessary starting point in order to reconcile a fractured theoretical landscape and to make sense of an inconclusive evidence-base (although admittedly, the path to achieve this also introduced one of the major limitations of this study – as discussed in Chapter 9). Despite limitations to empirical generalisability, case studies allow for *theoretical generalisability* (Bartlett & Vavrus 2019; Polit & Beck 2010; Simons 2014), ensuring that qualitative research findings are not simply descriptive, but have the potential to offer insights that go beyond the bounded empirical constraints of the case from which they were constructed.

Two research questions have guided this case study:

1. What were the key contextual conditions and organisational factors that gave rise to Alfred Health's trajectory of high performance and sustained performance improvement?
2. How and why did these key contextual conditions and organisational factors come together to produce this result?

The philosophical (ontological-epistemological-axiological) basis for this thesis is critical realism. As a highly comprehensive philosophical system, even the basic tenets of critical realism take time to explain which is well beyond the capacity of this introductory chapter (see Chapter 4). However, to provide a rudimentary summary, critical realism was selected as the most pragmatic 'middle ground' between logical positivism (typically the paradigm associated with quantitative studies and the hypothetico-deductive method), and interpretivism (typically associated with inductive qualitative research). The compromise offered by critical realism is useful in order to address the research aims of this study. That is, critical realism's support for an abductive approach (a mix between both deductive and inductive modes of inquiry), has allowed the research project to bring together and build

[2] Note, between 1987 and the time of publication, the name and configuration of the hospital network changed multiple times. For the sake of clarity, unless referring to a specific campus of the hospital network, the organisation is referred to by its contemporary name, Alfred Health, throughout this study, with the exception of direct quotations from interview data. The phrase 'The Alfred' is often used within interview data to refer to either Alfred Health or The Alfred Hospital.

upon the fragmented literature on hospital performance, and further, provided a basis for unveiling the 'how' and 'why' mechanisms of improvement and change. Interpretative (inductive) modes of study tend not to facilitate the former, and positivist (deductive) modes do not allow for the latter.

Unfortunately, one of the great drawbacks of critical realism is the well-documented absence of methodological guidance for empirical research (Ackroyd & Karlsson 2014). As detailed in Chapter 4, this necessitated the development of a method that operationalised, as far as possible, the underlying principles of critical realism. As such, a second (although no less important) aim for this thesis was to contribute to the literature on critical realist methodology and method. Following an appraisal of various options, this involved aligning and combining critical realist principles with an established method for qualitative thematic analysis, as developed by Braun and Clarke (2006). The decision to combine the two was based on claims for their compatibility made by the authors (Braun & Clarke 2006, p. 81). Further, the decision was made in light of various ontological-epistemological conflicts between critical realism and other qualitative perspectives, such as Yin's case study method (Yin 2014), or grounded theory (Charmaz 2014). Although choosing a research perspective that is poorly operationalised provides new avenues for original (methodological) contributions to scholarship, embarking upon methodological innovation also introduced several limitations to the study, as discussed in Chapter 9.

Consistent with broad guidance for critical realist case study research (Vincent & Wapshott 2014) interview and documentary evidence was collected in order to form an historical (longitudinal) (Pettigrew 1995) examination and explanation as to how and why the performance of Alfred Health resulted as it did. The chosen timeframe for the historical study commenced from the late 1980s, just prior to a turbulent period in the organisation's history in which the Victorian State Government considered closing (or relocating) The Alfred Hospital (the major campus of what is now Alfred Health).

Transcribed interview data were subject to thematic analysis as per the novel critical realist method that had been developed (with some changes necessary during the latter stages of the analysis, as discussed in Chapter 4). Documentary data were extracted from annual reports and other key documents to form a large database. The entire spectrum of previous theories (as derived from the fragmented literature base) were applied to the thematic analysis as 'deductive codes', and any insights from interview data that did not fit

these deductive codes were coded inductively. Insights arising from the earlier phases of analysis were subject to the critical realist principles of 'abduction' and 'retroduction' in later stages, in order to form several explanatory and theoretical propositions, as presented in Part B (findings chapters – Chapters 5, 6 and 7), and discussed in Part C (discussion chapters – Chapters 8 and 9).

1.3 STRUCTURE OF THE THESIS

This thesis is organised in nine chapters, including the introductory chapter (Chapter 1), and the conclusion (Chapter 9). Chapters 2, 3 and 4 form 'Part A' of the thesis, which broadly canvases existing scholarly knowledge and the methodology and research design for the empirical study. Chapters 5, 6 and 7 form 'Part B', encompassing the findings of research. Chapters 8 and 9 form 'Part C', the discussion and conclusion chapters. Table 1 provides an overarching guide to the thesis, including a summary of chapter content.

Table 1 A guide to the thesis and summary of thesis content

Chapter	Chapter Content
1. Introduction	Chapter 1 outlines both the 'real world' and scholarly need for further research into hospital performance and sustained performance improvement. Further, the chapter provides a brief summary of the critical realist methodology and in-depth (retrospective, longitudinal) case study design for empirical research. An outline of the structure of the thesis is provided.
Part A	Part A provides an overall summary of the purpose and content of Chapters 2, 3, and 4, including how they align with the research questions, and with key principles of critical realism. In essence, Part A maps the boundaries for original research – theoretical, empirical and methodological.
2. Literature Review: Theories, Models, Frameworks	Chapter 2 provides an overarching survey of the theoretical knowledge relevant to hospital performance and performance improvement. The chapter also includes a brief reflection on how and why theory is used in research, and introduces and draws on a conceptual framework to guide the study.
3. Literature Review: Realist Review of Empirical Knowledge	Chapter 3 reports on the findings from a review of published review articles (umbrella review) of supporting evidence for existing theoretical knowledge on hospital performance and performance improvement. The review adhered to the RAMESES criteria for 'realist review', however also complied with the PRISMA criteria for systematic review (where compatibility between the two methods would allow). Based on these findings, a second, revised conceptual framework was developed and is presented.

4. Methodology, Research Strategy & Design	Chapter 4 responds to the state of theoretical and empirical knowledge by presenting the research strategy and design chosen for this study. This includes study aims, objectives, and research questions. A more comprehensive introduction to critical realism is provided (and problematised), alongside a summary of how the ontological-epistemological-axiological system is put into practice as a working method for the empirical case study. This includes reflections on the level of success with which the thematic analysis method and critical realist principles were synthesised.
Part B	Part B provides an overview of the findings chapters (Chapters 5, 6 and 7) including the purpose and content of each chapter, how each chapter aligns with the research questions under study, and how they align with the key principles of critical realism.
5. Findings: A Hospital Hive Mind	Chapter 5 presents the 'hive model' which was developed from empirical data, in order to describe the various organisational characteristics that had been attributed by interviewees as crucial to the performance capacities of Alfred Health (as they existed at the time of data collection). The chapter concludes with the first of six explanatory propositions, and offers reflection on the 'hive' metaphor and model as key theoretical contributions offered by this study.
6. The History of the Hive Attributes: A Coalescence of Conditions and Factors	Chapter 6 chronologically charts the key events that data analysis would suggest were influential to the performance trajectory of Alfred Health, and that appear to have contributed to the development of the organisation's hive-like characteristics.
7. Time and Power: Temporal Mechanisms and the Spectrum of Control	Chapter 7 proposes a set of causal mechanisms that may explain the performance outcomes evident at Alfred Health. To begin, two underlying temporal mechanisms are theorised, relating to the role of sequence in the evolutionary development of Alfred Health and the organisation's capacity for improvement. Following this, a second set of theoretical propositions are offered, relating to the degree to which individuals or groups were able to influence the development of performance improvement capabilities and therefore, the degree to which they might have exerted influence over performance.
Part C	Part C provides an overview of the discussion and conclusion chapters (Chapters 8 and 9) including the purpose and content of each chapter, how each chapter aligns with the research questions under study, and how they align with the key principles of critical realism.
8. Discussion: The Alfred Hive – A Living Macro-Organism?	Chapter 8 begins with an assessment of the degree to which the findings address the original research questions guiding the study. This is followed by a comparison of research findings with existing scholarly knowledge on the topic of hospital performance and performance improvement. A set of final conclusions based upon a discussion of the findings is offered at the end of the chapter.
9. Conclusion	Chapter 9 examines the strengths, limitations and delimitations of the study, followed by a summary of the original contributions of the research, and the implications for future research and for policy-makers and hospital administrators. This latter reflection includes the application of a decision-support-tool (as presented in full, in Appendix L) to help policy-makers and administrators consider how research findings might be considered and recontextualised for their local

	settings. The chapter ends with a final statement summarising overarching conclusions from the study.

Further detail regarding the purpose and content of Part A, Part B and Part C of this thesis, their associated chapters, and how these chapters are interlinked, is provided at the beginning of each thesis section. Additionally, as introduced above, this study adopts a critical realist perspective. A common criticism of critical realist research is that, although authors may claim to conduct their research in ways that correspond with critical realist principles, often there is insufficient detail reported within published studies in order to establish how principles were used in practice (Wynn & Williams 2012). To mitigate this, the introductory comments canvassed in Parts A, B and C also provide an explanation as to how each chapter corresponds with key critical realist concepts and principles.

PART A. SETTING THE BOUNDARIES FOR EMPIRICAL RESEARCH

The purpose of Part A, consisting of Chapters 2, 3 and 4, is to describe and clarify the set of boundaries that were chosen to frame the research presented herein. This includes: an examination of the relevant conceptual and empirical knowledge base from which to launch the study; definitions of relevant terminology; the aims, purpose and key research questions driving the study; and finally, an exploration of the sorts of methodological and research design considerations most suitable to the aims and scope of study.

A description of Part A chapters and their interconnections

A review of the relevant research literatures is presented in two chapters: Chapters 2 and 3. The first is more conceptually-oriented, and the second examines the state of empirical knowledge on the topic of hospital performance and performance improvement. Chapter 2 begins with a reflection on the nature of theory and the practice of theorising, and how this applies to research undertaken in organisational settings. Following this, Chapter 2 positions the problem of hospital performance and performance improvement within a rich (although often disjointed and tangled) tapestry of intersecting disciplines and their associated assumptions, explanations, theories and models. A conceptual framework is presented in order to provide some structure to the review of relevant, if fragmented, literatures. To offer further structure and clarity, a set of key terms and their definitions are provided throughout the text.

Chapter 3 presents a realist review of the white and grey literatures relevant to the topic of public hospital performance and performance improvement. Key decisions regarding the review methodology and approach were formed by considering the unique perspective (and knowledge requirements) of health care policy-makers and hospital decision-makers. Due to the large quantum of research outputs on the topic, literature review articles provide an accessible avenue for practitioners to learn, synthesise and use research knowledge in practice settings (Day et al. 2019; Mulrow 1994). For this reason (and reasons of feasibility, given the breadth of the topic), the review of empirical literature was conducted as an 'umbrella review', otherwise known as a 'review of reviews'. Only articles that reviewed the

literature were included, and a high-level synthesis of knowledge on hospital performance was developed as a result.

In light of the findings presented in these earlier chapters, Chapter 4 describes the aims, objectives and research questions chosen for this study. The rationale for selecting an in-depth case study design is offered, and further, an explanation is provided for choosing critical realism as the most appropriate ontological-epistemological-axiological (philosophy of science) paradigm. The methodological implications of critical realism are examined and problematised, given the dearth of methodological guidance provided by the critical realist perspective (Ackroyd & Karlsson 2014). Chapter 4, therefore, offers an account of how critical realist principles and methodological considerations were used to inform the research strategy and design, and how these were operationalised and systematised as a method of analysis.

Critical realism in practice: how chapter content relates to critical realist principles

Table 2 provides a summary of the content of each chapter alongside an explanation of how chapter content corresponds with key critical realist concepts and principles.

Table 2 The correspondence between chapter content and critical realist research concepts

	Summary of chapter content	**Corresponding critical realist concept**
Chapter 2. Literature Review: Explanations for Hospital Performance	Chapter 2: • Situates hospital performance and performance improvement within relevant fields of knowledge and within broader questions on the nature of theory and theorising • Introduces a conceptual framework for the study • Introduces the span of theoretical and conceptual explanations relevant to hospital performance and performance improvement • Defines key terminology (throughout)	• Deductive groundwork for the process of abduction • Theoretical generalisability

Chapter 3. Literature Review: Realist Review of Empirical Knowledge	Chapter 3 offers: • A realist review of empirical knowledge that is in support of the various theoretical and conceptual explanations for hospital performance and performance improvement • A subsequent qualitative analysis of the discussion and conclusion sections of included literature • A revised conceptual framework	• Deductive groundwork for the process of abduction
Chapter 4. Methodology, Research Strategy and Design	Chapter 4 offers: • An introduction to the study aims, objectives and research questions • Rationale for the selection of a critical realist case-study design • A description of critical realist research principles • A detailed description of the research strategy and method	• Critical realist ontological principles: ○ Independent reality ○ Stratified ontology ○ Emergence ○ Open systems • Critical realist epistemological principles: ○ Mediated knowledge ○ Explanation ○ Causal mechanisms • Critical realist methodological principles: ○ Explication of events ○ Explication of structure and context ○ Abduction and retroduction ○ Empirical corroboration ○ Triangulation and multi-methods • Critical realist axiological principles: ○ Pragmatism ○ Emancipation • Critical realist method

Chapters 2 and 3 correspond with the critical realist principle of abduction. That is, critical realist research does not favour an entirely deductive (theory-driven) nor inductive (evidence-focused) approach – rather, an iterative balance between the two. In order to do this, critical realist researchers must first understand the full spectrum of deductive theories that may be applicable to the phenomenon of interest. This is achieved within this study by conducting a realist review of the literature, which itself is conducted in a systematised yet at times,

iterative, way in order to respond to new discoveries during the process of review. Chapter 4 introduces critical realism in more detail – from the philosophy of science to granular decisions of method. As such, Chapter 4 canvasses the prominent notions, principles and premises relevant to critical realist research.

2 LITERATURE REVIEW: EXPLANATIONS FOR HOSPITAL PERFORMANCE

A way of seeing is a way of not seeing.

Gianfranco Poggi (1965)

This chapter offers an overarching review of the scholarly thinking on hospital performance and related areas of research. This involves linking the intersecting and disconnecting literatures and outlining the relevant issues raised by scholars from a diverse set of disciplines and perspectives. The review assesses the theoretical (and, to a degree, methodological) deficiencies evident within the literature and their implications for empirical study. Importantly, the review is not intended as an appraisal of the current state of research knowledge, rather, it provides an historical survey of the span of ideas and theory relating to the topic. As such, wherever possible the original (often much older) theoretical contribution is cited in preference to more narrow contemporary commentaries.

The chapter is structured in three parts, beginning with a reflection on the nature of theory itself, and why it is that scholars seek to theorise. This first part concludes with an examination of what theory means in the context of organisational research. Following this, a conceptual framework is presented. The third part of the chapter then uses this conceptual framework to provide structure to a review and critical analysis of the span of theories, models and frameworks that are relevant to health care and hospital performance.

Key terminology is defined throughout the chapter and the thesis more generally. The definition of key terms is perhaps more exhaustive than what is common within most research theses. This is to ensure that words used in common parlance, such as 'organisation', or terms that differ in meaning between different research perspectives, such as 'theory', are adequately defined for use within this critical realist research project. A glossary, which was broadly designed to assist the reader in navigating critical realist terminology, is provided in Appendix A.

2.1 THEORIES AND ORGANISATIONS

2.1.1 Why theorise and what is theory?

Theory is essential to robust research. Without theory, researchers and practitioners are less able to develop, communicate, critique, empirically test and apply their ideas about how various aspects of the world function (Parsons 1938). However, the effective use of theory is more common within some research areas than others. Grol and colleagues (2007) surveyed the field of health service improvement research and concluded that the discipline was 'usually based on implicit (and potentially biased) personal beliefs about human behaviour and change' (p. 94). Beyond academia, the same was observed within the practice of health service improvement (Davidoff et al. 2015, p. 228):

> *…although informal theory is always at work in [*health service*] improvement, practitioners are often not aware of it or do not make it explicit. The germane issue for improvement practitioners, therefore, is not whether they use theory but whether they make explicit the particular theory or theories, informal or formal, they actually use.*

This would indicate that research into health service contexts might benefit from a more comprehensive understanding and explicit use of theory. A key purpose of this chapter is to address this deficit. Of course, the reverse situation, in which theory is favoured over 'fact' or 'real-life' applicability is just as damaging to research and practice (Davidoff et al. 2015). A balance between the conceptual and the empirical is required for research that is both trustworthy and applicable.

To define 'theory' is to assert a worldview – a specific position as to the nature of reality (ontology) and the nature of how we might come to know reality (epistemology) (Gioia & Pitre 1990).[3] For the purpose of this critical realist study, theory is defined as a set of

[3] At the positivist end of the spectrum (favoured by quantitative researchers), a 'good theory' (Popper 1957) might be said to comprise four key components: i) clear and precise definitions of terms or variables; ii) a domain in which the theory must apply; iii) a set of relationships among those variables; iv) specific predictions or factual claims (Wacker 1998). Interpretivist scholars, however, might unpick these components, perhaps finding that they unravel with a little scrutiny, particularly when applied to social rather than laboratory settings. For instance, as evidenced by the overwhelming number of contested definitions in the social sciences (Collier, Hidalgo & Maciuceanu 2006; Cray 1977; Gallie 1955), is it truly possible to develop a clear and precise definition of all terms and variables? And, are the boundaries between research domains truly distinguishable, or are phenomena influenced by the peculiarities of their contextual environments, and the particular characteristics of the various individuals and groups that comprise the phenomena itself? And, if research phenomena do operate within messy and unique 'open systems' (Bertalanffy 1976; Scott & Davis 2016, pp. 95-96), is it really

imaginary statements or principles, analytic and/or synthetic in nature, that are designed to provide systems of meaning within which explanations of the world can be formed.[4]

Theories are 'imaginary' in the sense that they form statements about the relationships and connections between various observable phenomena, where these relationships cannot be directly observed or measured through the senses or sense-extending equipment (Hartwig 2015, p. 464). Furthermore, despite challenges to the development of a 'good theory' (Popper 1957) – that is, the challenge of theory-articulation (definition), theory-confirmation (empirical testing) and theory-application (prediction or generalisation) – critical realists recommend an equal mix of pragmatism and reflexivity (Archer 2009, pp. 1-13; Bertilsson 2004). That is, challenge or not, a critical realist scholar's *attempt* to provide a clear definition of how and why particular relationships between empirical entities may have led to particular observable events, is essential. The definition of terms and variables, the drawing of empirical boundaries, and the practice of generalising from theory, are all important, so long as this is done alongside a deep awareness and reflexive consideration of the somewhat feeble nature of this attempt (Archer 2009), and the many nuanced reasons that make this so. In contrast, there is a tendency for positivists to gloss-over these deeper, more fundamental limitations, and for interpretivists to become consumed by them, often altogether denying important aspects of theory use such as generalisation (Creswell 2017; Polit & Beck 2010; Williams 2000).

It is worthwhile differentiating between the associated (yet often misunderstood and confused) concepts: 'theory', 'model' and 'framework'. A model offers a visually descriptive simplification and representation of a phenomenon or some aspect of phenomena (Hartwig 2015, p. 464; Nachmias & Nachmias 1996; Nilsen 2015). A good model is as synthetic as it is analytic. Whereas by definition analysis requires the breaking down of a whole into separate component parts, synthesis is the reconstitution of separated elements to form a new whole

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possible to develop specific predictions or factual claims that survive the crossing from one context to another? The only point of agreement between scholars seems to be the role of theory to illuminate sets of relationships among observable entities. Importantly for this study, this view is highly compatible with the critical realist perspective (Hartwig 2015, p.464), which is positioned somewhere between the positivist and interpretivist paradigms.

[4] This definition is itself a condensed synthesis of the critical realist definition provided by Hartwig (2015, p.464) and the definition offered by Nilsen (2015, p.3) – a health service scholar from the implementation science field.

(Oxford English Dictionary). Frameworks, on the other hand, do not offer explanatory value so much as provide an analytic, categorical structure in order to describe phenomena (e.g. by using tables or matrices) (Nilsen 2015). Further, unlike models, frameworks identify the parts of a phenomenon without shedding light on the relationships or interactions between those parts. The role of theory, as defined above, is to help explain the analytic categories provided by a framework, or the analytic and synthetic descriptions provided by a model (Hartwig 2015, p. 464; Nilsen 2015).

For the purpose of this thesis, the term 'explanation' encompasses all theories, models, frameworks or hypotheses that scholars have put forward to account for hospital performance outcomes. This may include both formal theory and implied reasoning to explain an outcome.

2.1.2 What are organisations, and how are they theorised?

For the purpose of this study, a common or intuitive understanding of what is meant by 'organisation' is insufficient. Here an adapted criterion for 'organisation' offered by Daft and Steers (1986) is used. The definition is adapted to better suit the basic principles and premises of critical realism, including notions of open systems and agency. As such, an organisation is:

1. A social entity; that:
2. Is goal-directed, within a context of multiple and possibly competing objectives and motivations operating at various social levels;
3. Encompasses a deliberate system of activity, as well as less-deliberate tendencies or actions; and
4. Operates within a perceived social boundary.

As a social entity, organisations are composed of individuals and groups of individuals who occupy specific roles and interact in what tend to be fairly patterned ways in order to perform the functions of the organisation. Organisations are explicitly purposive, designed to achieve a particular goal, however the motivations and objectives that operate among individuals or groups that make up the organisation may be more plural and fractured than a homogenous organisational 'mission statement' might imply. Organisations tend to employ deliberate structures and strata in order to divide tasks and levels of decision-making authority between various individuals and groups, although less formal structures, mechanisms of power, and routines or actions also exist alongside these structures. Finally, organisations function within a context of external conditions and are beholden to the individuals who comprise the

organisation (and their associated circumstances, skills, characteristics, and social networks). Organisational members tend to identify as belonging to the organisation, or to sub-groups within the organisation and the perception of an organisational boundary is an important aspect of the social entity.

Scholars interested in studying organisations often differentiate theory that belongs to micro versus macro levels of analysis, although there is some disagreement about precisely what each of these categories describes (Astley & Van de Ven 1983; Daft & Steers 1986). For current purposes three levels will be distinguished: micro (relating to the level of the individual operating within the organisation); meso (relating to the level of the organisation itself); and macro (relating to the level of the community or ecology of organisations). 'Organisation theory' generally refers to conceptualisations at the meso level, and is the primary theoretical perspective of this thesis.

Theoretical understandings of organisations also tend to fall on a continuum of more or less deterministic or voluntaristic assumptions (Astley & Van de Ven 1983). Echoing the philosophical 'free-will and determinism' debate (Franklin 2017, pp. 1-10), theories developed from the voluntaristic viewpoint see individuals as the basic unit of analysis, causally responsible for organisational performance and capable of creating change and overseeing organisational development. In contrast, those scholars favouring a deterministic view of organisations pay more attention to characteristics operating in the organisational context within which individual behaviours are structurally bound, constrained and react (Astley & Van de Ven 1983). The sliding scale between deterministic and voluntaristic perspectives is a major point of focus within subsequent chapters (particularly Chapter 7).

2.2 A CONCEPTUAL FRAMEWORK

2.2.1 The environment-attribute-strategy triad

Whether due to ignorance, convenience, incentive or the persistence of 'tribal' academic identities (Becher & Trowler 2001; McKinley 2010), some scholarly topics appear more vulnerable to intra- and inter-disciplinary conflict and fragmentation than others. Arguably, the topic of this thesis is one such example. Sociology, organisational and social psychology, organisation studies, strategic management, public administration, engineering, health service research and the schools contained within (e.g. public health, nursing, medicine, allied

health) each lay some claim over the subject of organisational performance and improvement in the context of health care and hospitals (Mick & Shay 2014b). Unfortunately, opposing or complementary schools of thought often fail to build on the potentially relevant findings published outside their respective disciplines, perhaps due to conflicting viewpoints and a rigidity of worldviews (Andrews & Esteve 2015; Boyne 2006; Grol et al. 2007; McKinley 2010). For instance, various combinations of assumptions surrounding voluntarism and determinism, or a differing focus upon micro, meso and macro organisational levels, may align with distinct schools of thought within the study of organisations, and this may prevent more cohesive and collaborative scholarly efforts. For this reason, it is particularly important that a guiding conceptual framework be used to provide the necessary structure for a meaningful review of this complex, non-cumulative and somewhat conflicting area of the literature.

There are many valid ways to impose conceptual structure upon a study seeking to understand hospital performance. It would seem, however, that little is offered from the health service literature itself. Perhaps due to the well-acknowledged lack of emphasis on theory and theorising within health disciplines (Davidoff et al. 2015; Grol et al. 2007), conceptual frameworks offered by the health services literature tend to: lean more towards the *assessment* of performance rather than the processes or capacities for performance itself (Veillard et al. 2005); focus upon the wrong level of analysis (the macro level - health *system* performance (Arah et al. 2003) or 'improvement' *within* the hospital (Grol et al. 2007) etc.); or otherwise, frameworks appear to be more limited in scope than might be suitable for a critical realist study (Hans, Van Houdenhoven & Hulshof 2012). One of the core epistemological principles of critical realism requires the consideration and comparison of all possible explanations for a particular phenomenon before settling upon one as the most feasible given what is known at the time of study (Bhaskar 1993, p. 133; Wynn & Williams 2012).

In essence, however, a hospital is simply an organisation (although not necessarily an example of a simple one) and, as described above, sociologists and organisational theorists have devised various ways to conceptualise organisations, their function, performance, and performance improvement (Astley & Van de Ven 1983; Burrell & Morgan 1979; Ofori-Dankwa & Julian 2001; Rao & Pasmore 1989). An overarching conceptual framework was chosen from the public administration literature, which encompasses many of the broader sociological and management concepts, but reframes these so that they are more suitable to the public sector

context. The chosen framework brings together a triad of meta-theoretical categories encompassing the full span of contextual conditions or factors that may be relevant to hospital performance: the organisational environment; organisational attributes; and organisational strategies. Figure 1 presents a diagram for the conceptual framework, adapted from Ashworth, Boyne and Entwistle (2010, p. 10); and incorporating aspects of the work of Sheaff et al. (2003) and Andrews (2012).

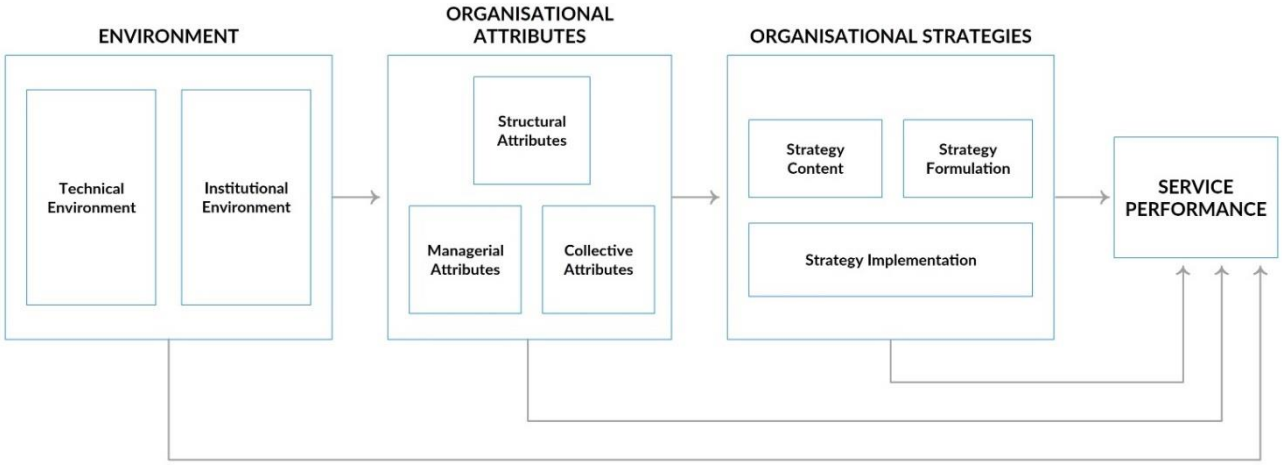

Figure 1 Triad of theoretical determinants for public service performance (adapted from Ashworth, Boyne & Entwistle 2010)

'Environment' explanations refer to the external context of the organisation. Theoretical explanations from this category usually refer to more deterministic conditions or factors. For example, patient demographics, funding availability, regulatory schemes. 'Attribute' explanations refer to the internal organisational context, for instance, the organisational structure, organisational culture, and governance arrangements. 'Strategy' explanations commonly refer to voluntaristic interventions or programs employed to bring about an improvement or desired outcome, for example, quality improvement programs, strategic planning, or innovations.

Although it is possible to categorise explanations, theories and factors in such a way, it is important to view them as highly permeable constructs, with a low likelihood of mutual exclusivity between categories of determinants or factors. It is also useful to note that not all research within this broad field directly measures organisational performance as the dependent variable. Some scholarly work encompassed by the conceptual framework

examines the associations between factors within just one of these theoretical categories (e.g. how leadership might affect culture), or the impact of one category upon another (e.g. how accreditation schemes may influence improvement strategies).

2.2.2 Hospital performance defined

Before embarking on a review of the theories that sit within the chosen conceptual framework, it is useful to first define what is meant by hospital, hospital performance and performance improvement, and to gain an understanding of how hospital performance is measured. A hospital is a type of organisation (as defined above) established for the '…care of the sick or wounded, or those who require medical treatment' (Oxford English Dictionary 2010). In turn, 'care' in this context refers to the efforts of trained professionals to maintain or restore physical, mental or emotional well-being to a person with medical needs (Merriam-Webster 1995).

The Australian Institute of Health and Welfare regards health care performance as encompassing four dimensions: i) safety and quality; ii) patient experience; iii) access; and iv) efficiency and financial performance (Australian Government 2011). Table 3, below, lists these indicators and the sets of sub-indicators that might be used to measure hospital performance. Some sub-indicators are collected and reported publicly in Australia and some sub-indicators are not, largely due to the need for further 'methodological development' (Australian Institute of Health and Welfare 2014).

Table 3 Performance indicators for hospitals and local hospital networks

Indicator	Sub-indicator (reported)	Sub-indicator (not yet reported)
6.2.1 Effectiveness – Safety and Quality	• Health care-associated Staphylococcus aureus infections	• Hospital Standardised Mortality Ratio • Death in low-mortality Diagnostic Related Groups • In hospital mortality rates for select conditions • Unplanned hospital readmission rates for patients discharged following management of select conditions • Health care-associated Clostridium difficile infections

		• Rate of community follow up within the first seven days of discharge from a psychiatric admission
6.2.2 Effectiveness – Patient Experience	N/A	• Measures of the patient experience with hospital services
6.2.3 Equity and Effectiveness - Access	• Emergency Department waiting times by urgency category • Percentage of Emergency Department patients transferred to a ward or discharged within four hours, by triage category • Elective surgery patient waiting times by urgency category • Cancer care pathway – waiting times for cancer care	• Access to services by type of service compared to need
6.2.4 Efficiency – Efficiency and Financial Performance	• Relative Stay Index for multi-day stay patients • Cost per weighted separation and total case weighted separations	• Day of surgery admission rates for non-emergency multi-day stay patients • Financial performance against activity funded budget (annual operating result)

The distinction between organisational performance and organisational performance improvement is perhaps more implied than actual, and can be seen as a result of the differing vantage points from which a researcher, policy-writer or public service manager may choose to view, question or measure the phenomenon. Whilst there is no study of improvement without a baseline measure of performance, correspondingly, it would be rare to find instances in which measuring performance did not, at least implicitly, carry with it the assumption that further knowledge about performance may lead to an enhanced capacity for improvement. For the purpose of this thesis (and following the logic outlined by Boyne (2003, pp. 368-369)) hospital performance improvement can be conceptualised as an 'upward shift' in any of the performance indicators outlined above.

2.3 A REVIEW OF THEORIES AND EXPLANATIONS: ENVIRONMENT–ATTRIBUTE–STRATEGY

Drawing on the previously established conceptual triad – environment-attribute-strategy – this section of the review offers a critical analysis of prominent and relevant explanations for organisational performance. The section presents a summary of predominantly 'single-factor' explanations that correspond with each of the environment, attribute and strategy conceptual categories. Following this, a summary of existing 'multi-factor' theories that cross the boundaries of these categories is provided.

2.3.1 Organisational environment

This section first introduces a classification structure for the various dimensions of environment that are commonly discussed within organisational theory, and second, describes three environment-level theories of most relevance to the topic of public hospital performance.

2.3.1.1 Dimensions of environment

The environments surrounding public sector organisations can be classified according to their respective 'institutional' or 'technical' dimensions (Mick & Shay 2014a). The institutional environment refers to the actions of external stakeholders that impose regulatory constraints and provide resources or legitimacy to public sector organisations (Andrews et al. 2012). Examples might include: the introduction of case-mix funding in the Australian acute care sector during the 1990s in order to increase hospital efficiency (Duckett 1998); the ongoing refinement of hospital accreditation schemes introduced in the 1970s and 1980s in order to guide the improvement of safe and effective services (Duckett 1983); and the introduction of specific performance targets including maximum waiting times for clinical treatment in order to improve accessibility of hospital services (Maumill et al. 2013).

The 'technical environment', on the other hand, comprises three parts: 'munificence', 'complexity' and 'dynamism' (Dess & Beard 1984). 'Munificence' refers to the availability of critical resources over which the organisation itself typically exerts little control. This might include the availability of public funding or the availability of a suitably qualified workforce (Blustein, Borden & Valentine 2010). 'Complexity' refers to the type and extent of the needs of the people serviced by the organisation. For instance, a population with a high rate of multi-morbid chronic illness, or an ethnically diverse community requiring translation

services, may add strain upon a hospital's capacity to perform within specified quality and efficiency standards (Boyd et al. 2005; King et al. 2011). 'Dynamism' refers to the pace at which the needs of the serviced community change (instability), and the capacity for those changes to be foreseen and responded to effectively by the organisation (predictability) (Andrews 2010a, pp. 17-19). For instance, high levels of environmental turbulence, due to a context of rapid policy change, technological advancement, or new forms of competition (Ginn 1990), might overwhelm hospital management and lead to a drop in performance outcomes, or it may trigger renewed strategic change and innovation with performance advantages.

2.3.1.2 Contingency and configuration theories

Contingency theorists are typically interested in the 'best fit' between particular sets of environmental conditions and the corresponding form and strategy of an organisation (Donaldson 2001). Initially, theorists proposed that stable environmental conditions provided the best circumstances for 'mechanistic' (hierarchical, rule-bound) organisational forms to thrive, as these forms were able to exploit the efficiencies created through procedural standardisation and routine. As such, 'organic' (less hierarchical, fluid and egalitarian) organisational forms were said to better suit rapidly changing and unstable environments, due to their capacity for adaptation (Hatch & Cunliffe 2013, p. 67).

Later contingency theorists have examined other dimensions of environment and the possible 'best fit' between these dimensions and organisational form. For example, some theorists examined the 'simple-complex' binary, which suggested that organisational success is dependent upon the matched correspondence between levels of environmental and organisational complexity (Hatch & Cunliffe 2013). Or, as per the prominent Miles and Snow model (1978) organisational types are characterised upon a continuum 'innovators' versus 'consolidators', according to their response to environmental risk.

An example of contingency theory from the medical and clinical context includes the work of Smith and Kaluzny (1975) (as adapted from Perrow (1967)). Their typology identified four structural-environmental organisational types in health, as relating to two key dimensions: i) few versus many exceptional cases; and ii) clearly understood or specified clinical tasks and procedures versus not well understood or specified tasks or procedures. Those organisations with few exceptional cases and clearly understood clinical tasks (e.g.

public health departments, immunisation programs, routine pathology clinics etc.) tended to be more bureaucratic in structure and form, with high levels of standardisation, hierarchical management, and formalised relationships. In contrast, those organisations with many exceptional cases alongside clearly understood clinical procedures (e.g. urgent care services such as ambulatory services, emergency departments, trauma centres etc.), tended towards a professional organisational model, in which a mixture between formal structures and peer-to-peer monitored or administered power relations. Organisations with few exceptional cases alongside poorly understood clinical tasks and procedures (e.g. mental health care settings) tended towards less formal structures, allowing for more experimental, risk-taking or unpredictable approaches to care. Last, those organisations with many exceptional cases alongside poorly understood clinical tasks and procedures (e.g. genomic medicine, or brain cancer treatments with the multitude of cancerous growths for which many treatments are ineffective) tend to produce organisational forms that are highly professional and nonbureaucratic.

Contingency theory has remained an influential perspective within the field of organisation studies and strategic management, and increasingly so, within the public sector research field (Andrews et al. 2012; Andrews et al. 2009; Meier et al. 2010). The closely associated 'configuration theory' can be viewed as an extension of contingency theory, which also incorporates broader influences from other schools of thought, for instance, the strategic positioning school or organisational learning theory (Mintzberg, Ahlstrand & Lampel 2005). The basic premise of configuration theory is that cyclic periods of environmental stability are interrupted occasionally by periods of turbulence. Organisations must learn to capitalise on periods of stability by finding the 'best fit' for the particular context; however, they must also be prepared for a process of transformation (a quantum leap to a new configuration) during times of turbulence (Andrews, Beynon & McDermott 2016).

2.3.1.3 Resource dependence theory

Resource dependence theory examines the dynamic between organisations operating within an environment of constrained resources. For instance, a public sector organisation (e.g. a hospital) may be dependent upon a funding body (e.g. a government department) in order to obtain resources from the environment, which in turn, may have consequences for

organisational performance (Pfeffer & Salancik 2003). The imbalance of power between organisations is known as 'resource asymmetry'.

The predictability and stability of interdependent organisational relationships has important implications for organisational performance and success. For instance, to secure any uneven relationships subordinate organisations might engage in: buffering strategies to control the flow of resources; bridging strategies where connections with other important organisations are sought; or adaptive and legitimising strategies in order to secure the approval of the organisations upon which they rely (Pfeffer & Salancik 2003; Scott & Davis 2016). As such, resource dependence theory recognises the importance of organisational and independent agency, and the influence that decisions or actions formed at the level of the organisation may have upon the broader environmental context (Mick & Shay 2014b; Pfeffer & Salancik 2003).

In the context of public hospitals, the role of the hospital board is highly relevant. Hospital boards often act as the conduit between the organisation itself and the political, economic and social environment surrounding the organisation, including setting the overarching strategic direction for the organisation, engaging in political advocacy, and pursuing opportunities for new infrastructure or other strategic projects (Boyd 1990).

2.3.1.4 Institutional theory

Institutional theory seeks to examine deeply-held societal beliefs, norms and ways of thinking, and to chart their influence upon organisational structures and processes (Mick & Shay 2014a). Importantly, institutional theory examines both the positive performance effects of these beliefs and norms, as well as instances in which norms may work against rational understandings of efficiency and performance. That is, organisations may behave in ways that do not lead to improved performance *per se*; however, these same behaviours may improve the chance of organisational success through demonstrated adherence to structures and processes that are considered 'legitimate' within their broader social and political environment (Scott & Davis 2016). The notion of legitimacy is therefore central to institutional theory (Meyer & Rowan 1977).

Earlier forms of institutional theory ('old' institutionalism which emerged in the 1940s and 1950s) paid particular attention to normative and regulatory pressures and their influence on organisations (DiMaggio Paul & Powell Walter 2000; Meyer & Rowan 1977)

whereas later 'neoinstitutional' theorists (from the 1970s onwards) introduced a more cultural, cognitive and symbolic lens to the study of organisations (Zucker 1987). For instance, neoinstitutional theorists have reflected on the role of organisational mimicry among groups of organisations, which in turn, is said to lead to a certain level of sector-homogenisation (named 'isomorphism') (Meyer & Rowan 1977; Mizruchi & Fein 1999). This might help explain the tendency for hospitals to adopt particular organisational strategies, for instance, Lean Thinking (Radnor, Holweg & Waring 2012), even when evidence for their successful application in health care settings remains patchy (Andersen, Rovik & Ingebrigtsen 2014; Kaplan et al. 2014; Radnor, Holweg & Waring 2012).

2.3.1.5 Critique of environment explanations

Mintzberg and colleagues (2009, pp. 302, 312-316) suggest that environment theories are most valuable for their capacity to restore balance to other viewpoints in the field that champion more voluntaristic perspectives. This re-balancing ensures that the influence of important environmental and contextual forces are not disregarded and 'controlled for', as is often the case within highly reductionist and positivist research traditions. In direct contrast, however, environmental theorists may be prone to an overly deterministic view, considering organisations as somewhat passive reactors to environmental pressures, rather than being involved in an interactive relationship with their environment (Astley & Van de Ven 1983; Hrebiniak & Joyce 1985). Contingency theories, in particular, have been criticised for their often simplistic, 'abstract… vague and aggregated' accounts of organisational performance determinants (Mintzberg, Ahlstrand & Lampel 2009, p. 312). Attempts to introduce further contingencies to account for organisational complexity have resulted in the production of increasingly narrow or 'unwieldy' constructs (Hatch & Cunliffe 2013, p. 33). This may indicate that finding a balance between the more deterministic viewpoint provided by environment theories, and the more voluntaristic view offered by theories of strategy and change, is advisable.

2.3.2 Organisational attributes

There is a broad group of theories and perspectives that arguably fit beneath the 'organisational attributes' category. Each perspective or theory pertains to a component, or group of components of organisation that are necessarily and inextricably linked (e.g. leadership style and organisational culture). However, in the interests of simplicity (and

relevance), four chosen perspectives will be introduced within this section of the review: organisational structure; leadership; organisational culture; and the resource-based view of organisations.

2.3.2.1 Organisational structure

Campbell et al. (1974) distinguish between the 'structural' and 'structuring' characteristics of organisations, delineating between those features that make up the physical surroundings (e.g. organisational size, or ratio of managers to workers) and the activities that managers undertake to control and shape organisations (e.g. degree of centralisation, formalisation or division and specialisation of labour (Hage & Aiken 1967)). Both the 'structural' and 'structuring' characteristics of organisations play a vital role in the functioning of organisations and behaviour of organisational members.

Whereas 'structural' components are relatively easily understood, attributes of 'structuring' may require further conceptual elaboration. Three components of 'structuring' have been described: 'centralisation', referring to the level of the organisation in which key strategic decisions are made; 'formalisation', the extent to which an organisation relies upon standard rules and procedures; and 'specialisation', the degree of labour separation within the structure of the organisation (Hage & Aiken 1967). As suggested by Andrews (2010b), perspectives on structuring are particularly relevant to public sector organisations, as public sector managers have more influence over structuring aspects like centralisation of decision-making, than structural characteristics like organisational size.

Mintzberg's notion of professional bureaucracy (as opposed to machine bureaucracy) (Lunenburg 2012) is often used to describe particular configurations of structuring that are common to health care organisations and hospitals. That is, professional bureaucracies rely upon a relatively formal and centralised structure; balanced by a highly specialised professional workforce who demand autonomy. These 'demands' are supported and facilitated by the presence of powerful professional bodies such as medical colleges or nursing associations, which add collective weight to the requirements or requests of a few. The perpetual tension between structural rigidity and professional freedom is a key characteristic of social structures found in hospitals.

2.3.2.2 Leadership

Stogdill defines leadership as: 'the process (act) of influencing the activities of an organized group in its efforts towards goal-setting and goal achievement' (Stogdill 1950, p. 4). This definition is highly applicable to public service organisations (including hospitals) as it accounts for the 'influence' rather than 'rule' of public sector leaders, reflecting the highly politicised environments of public services. Additionally, the definition draws on 'goal achievement' as the key performance outcome, as opposed to more restricted criteria like profitability, or market share.

Petrovsky (2010) recognises three broad theoretical positions relevant to public sector leadership. The first focuses on the personal qualities of top-level leaders, and their differential capacity for influence. This perspective suggests that individual differences, in isolation or in combination with environmental conditions, will affect the capacity for a leader to positively influence organisational performance. A leader's 'motives, means and opportunities' are considered to have the most profound effect on performance (Boyne & Dahya 2002). Several hypotheses surrounding the qualities and 'fit' of top-level public sector leaders have been proposed and tested over the last fifteen or so years (Nohria & Khurana 2010). A prominent hypothesis is that the stability and longevity of leadership is important to performance, in contrast to the 'revolving door' of rapid and frequent leadership changes, which is common within public hospitals (Finkelstein & Hambrick 1990). Boyne and Dahya (2002) argue that the degree to which leadership change is disruptive to organisational performance is dependent upon the leadership qualities of the successor. In circumstances in which the new leader brings a more appropriate 'motive', 'means' and is given 'opportunity', leadership change is less likely to compromise organisational performance.

The second theoretical position identified by Petrovsky (2010) considers two modes of leadership – transactional and transformational (as originally proposed by Burns (1978)). Transactional leaders set and communicate expectations for their workers including incentives and disincentives, and request compliant behaviour and specified performance outcomes. This style of leadership has tended to facilitate the maintenance of performance standards; however, it is arguably ineffective for bringing about significant performance improvement (Bass 1985). Transformational leadership, on the other hand, is better equipped for organisational change. The theory encompasses four key components (the '4 I's': i) 'idealised influence' – referring to the capacity to lead others through role-modelling

values and behaviour for emulation by followers; ii) 'inspirational motivation' – referring to the capacity to inspire and motivate followers through the presentation of a vision that resonates; iii) 'individualised consideration' – refers to the demonstration of genuine concern for followers, which helps to build trust and buy-in; and finally iv) 'intellectual stimulation' – referring to the tendency for transformational leaders to challenge followers to innovate, improve and use their creativity (Bass & Avolio 1993). The highly politicised and often 'risk-averse' qualities of public services, including health care, have been found to encourage transactional leadership styles, irrespective of whether their leaders are capable of engaging in more inspiring leadership practices (Maddock 2008).

Another model worth mentioning alongside transformational leadership is the notion of adaptive leadership (DeRue 2011; Heifetz, Grashow & Linsky 2009). Adaptive leadership theory takes a complexity science view (see also Section 2.3.4.3), differentiating between technical problems and adaptive problems. Whereas technical problems can be addressed through the application of more easily defined sets of expertise, resources or skill (e.g. changing to a more effective disinfectant for the purpose of hospital hand hygiene); adaptive problems are more difficult to identify or describe, and resist obvious, simple solutions (e.g. understanding why a particular ward has resisted the implementation of a hand hygiene policy or procedure). Adaptive leadership requires letting go of hierarchical models of power in order to support more iterative and collective ways of working (Heifetz, Grashow & Linsky 2009). The leadership practices required to resolve adaptive problems are theorised as: i) continually navigating changes in context by embracing uncertainty and actively encouraging organisational members (particularly those who are best-placed to inform business decisions) to look for new problem-solving approaches; ii) leading with a focus on group-level cohesion and with respect for individual decision-making autonomy; iii) encouraging experimentation in problem-solving with an attitude of interest, reflection and learning rather than punishment, should failures occur; and, iv) a focus on facilitating cooperation and win-win solutions (Heifetz, Grashow & Linsky 2009).

Petrovsky's third theoretical position (which is unique to public sector scholarship) is concerned with the quality of the relationship between political and managerial leaders. This theory suggests that public sector performance is co-produced between both political and managerial leaders. The implicit agreements (or disagreements) between both sets of leaders

affect public sector performance and the capacity to bring about transformational change and improvement within public sector environments (Petrovsky 2010).

2.3.2.3 Organisational culture

Organisational culture is broadly regarded as multi-dimensional. Various layers of culture exist and may influence performance in various different ways. Newman (1994) suggests a three-layered model of organisational culture: 'symbolic' (e.g. visible signs that signify value to an organisation, like logos or mission statements); 'practices' (e.g. less visible yet still observable routines or 'ways of doing things'); and 'values' (e.g. the sometimes difficult to observe, deeply held, common principles that have been developed and refined over time by the group). Major debates in the organisational culture literature tend to grapple with the extent to which cultures can be identified, measured and managed (at the various levels described above), and whether they are distinct, consistent and homogenous within a single organisation. In fact, a scholar's position in relation to these major controversies can be viewed as a crude summary of their theoretical position on the topic. The distinction between organisational culture (deeper, less-measurable characteristics like values) and climate (more measurable characteristics operating at the surface of an organisation) is also a contentious issue (Schneider & Barbera 2014).

The Competing Values Framework (CVF) is a prominent perspective linking organisational culture and performance that has been applied to health and hospital contexts (Jacobs et al. 2013). The framework distinguishes culture across two opposing dimensions: i) flexibility, discretion and dynamism, versus stability, order and control; and ii) integration, collaboration and unity versus differentiation, competition and rivalry. The framework uses these two dimensions, and various combinations of these two dimensions, to describe a typology of four cultures: clan culture; developmental culture; hierarchical culture; and rational culture (see Figure 2, below).

Other important theories of relevance to hospitals include narrower conceptualisations of organisational cultures operationalised for specific dimensions of performance, such as 'patient safety culture/climate' (Allen, Chiarella & Homer 2010; Kirk et al. 2007; Speroff et al. 2010) or 'learning culture' (Mayo & Lank 1994).

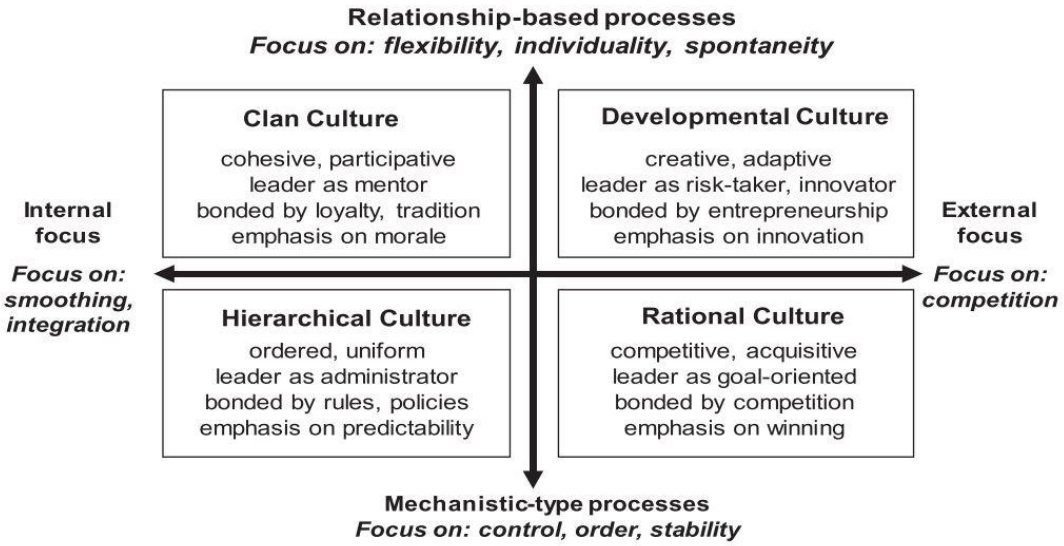

Figure 2 The Competing Values Framework (CVF) for organisational culture (Jacobs et al. 2013)

2.3.2.4 Human resource management (HRM)

Human resource management (HRM) has been described as 'anything and everything associated with the management of employment relationships' (Boxall & Purcell 2000, p. 184). Scholars from various philosophical or ideological positions might view 'anything and everything' quite differently.

'Best practice' HRM scholars suggest that a universally-applicable set of human resource practices exist that are associated with positive organisational performance outcomes (Boselie, Dietz & Boon 2005). Lists of best practices are often lengthy, and vary between theorists and disciplines, but as a sample, it is worth noting the list of seven practices refined by Pfeffer (1998): i) emphasis on providing employment security; ii) selective hiring of new personnel; iii) use of self-managed teams; iv) compensation linked to performance; v) decentralisation of decision-making; vi) reduced status distinctions between management and staff; vii) and information sharing. The extent to which these so-called 'best' practices are indeed universal across contexts is debated (Guest 2011; Purcell et al. 2008; Richardson & Thompson 1999), as is the distinction between HR policy and the reality of practices themselves (Wright & Boswell 2002).

Opposing the best practice perspective, scholars who belong to the 'best fit' school would argue that particular HR practices ought to be selected in relation to various characteristics of the organisational environment, including the external environment, the

internal organisational environment, the degree of organisational maturation, and the particular objectives or organisational strategy of interest (Becker et al. 1997; Guest 1997). Of particular interest to the hospital and health contexts are issues of; financial austerity, regulation and inspection; increasing demand for services; rising clinical complexity; and enduring 'craft' group and professional cultures (Buchan 2004) (such as the medical colleges). Arguably these external factors carry implications for a number of key HRM issues confronting hospitals: clinical skills shortages; staffing rates and patient-staff ratios; increased intensification of work; high rates of staff absenteeism and turnover; barriers to interprofessional team working and inter-organisational collaboration; and issues of bullying and harassment (Baluch, Salge & Piening 2013). Indeed, each of the key HRM challenges listed above feature within the hospital performance literature (Townsend, Lawrence & Wilkinson 2013; Townsend & Wilkinson 2010).

The link between HRM and organisational performance is not particularly well conceptualised or researched (Guest 2011), and the field has been criticised for resting on assumptions of unidirectional causality (Schneider et al. 2003). There are four theoretical perspectives worth noting. Two of the four are discussed in other parts of this chapter, including the resource-based view (see Section 2.3.2.5), and contingency theory (see Section 2.3.1.2), and are therefore simply noted but not treated in any depth here. The third, is broadly known as the Ability, Motivation and Opportunity (AMO) framework (Appelbaum et al. 2000), which suggests that the design of HRM systems can be optimised to help employees develop skills and motivation for their role, thus providing employees with opportunities to use their abilities towards the improvement of organisational performance. For instance, various HRM practices can be chosen to influence an employee's: *ability* (e.g. hiring, training); *motivation* (e.g. rewards, incentives); and *opportunities* (e.g. teams or suggestion systems). A final category of theory relates to 'micro-level' HRM-performance models such as expectancy theory or goal-setting theory which emphasise the importance of employee's experience of HR practices, seeking to identify the role and activity of various causal mediators between experiences and organisational performance. These models have gone further to address the issue of unidirectional causality by identifying the role and activity of various causal mediators upon performance, and how performance outcomes may influence important aspects of experience such as job satisfaction.

2.3.2.5 The resource-based view

The resource-based view ('of the firm' – Wernerfelt (1984)) was developed in the mid-1980s and early 1990s and thereafter became 'one of the most prominent and powerful theories for describing, explaining, and predicting organizational relationships' (Barney, Ketchen & Wright 2011, p. 1300). However, despite the theoretical prominence of resource-based theories within private sector literatures, the perspective has received only limited attention within public sector scholarship, though interest is beginning to grow (Andrews, Beynon & McDermott 2016; Ferlie & Ongaro 2015).

Resource-based theory takes the view that organisations are composed of 'bundles' of tangible and intangible resources that are not easily acquired, shared, mimicked or transferred (Barney 1991). Resources might include physical capital (technological hardware, plant and equipment, geographical, material), human capital (knowledge, experience, training, relationships), or organisational (formal as well as informal structures and networks) (Mintzberg, Ahlstrand & Lampel 2009, p. 293). In particular, resource-based theory considers human resources as precious and unique assets, crucial to the performance of organisations (Barney 1991).

'Dynamic capabilities' refers to a specific construct which seeks to overcome criticisms suggesting that resource-based theory is only applicable within relatively static environments (Barreto 2010; Eisenhardt & Martin 2000; Piening 2013). Dynamic capabilities are the 'bundles of interrelated routines which, shaped by path dependency, enable an organization to renew its operational capabilities in pursuit of improved performance' (Piening 2013, p. 216). As public sector organisations face increasing environmental change, the dynamic capabilities construct has gained some momentum, and has begun to be tested by scholars for its capacity to assist with the continual renewal of organisational competencies for sustained public value (Piening 2013).

2.3.2.6 Critique of attribute explanations

Organisational attribute explanations, such as leadership and organisational culture, tend to suffer from high levels of scholarly dissidence and inconsistency. There is often little consensus regarding the definition of key terms, which makes comparisons between different studies or theories challenging. Coupled with poor definition, it is often difficult to

operationalise and measure key components or factors of theory, such as an organisation's cultural values (particularly within the frame of quantitative research).

As introduced in Section 2.1.2, the problem of voluntarism and control is an important consideration for attribute explanations. For example, many leadership theories are criticised for their tendency to inflate the capacity of leaders to contrive or control organisational outcomes (Antonakis et al. 2014). Similarly, assumptions of rationality and rational decision making also present as problematic. For instance, the organisational structure literature tends to ignore the influence of human factors such as staff motivations and emotion, thus overlooking their capacity to (overtly or covertly) undermine the function and effectiveness of certain organisational structures.

Pertaining specifically to organisational culture theory and the whole-of-organisation level of analysis is the issue of cultural homogeneity. That is, the notion that there is one coherent organisational culture may be far too simplistic in light of the various administrative levels, professional groups, and distinct departments and divisions that constitute an entire organisation.

2.3.3 Organisational strategy

Organisational strategy is the primary area of interest for both the strategic management and change management disciplines. Whereas 'strategy can be defined as the determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals' (Chandler 1962, p. 13) change management is: 'the process of continually renewing an organization's direction, structure, and capabilities to serve the ever-changing needs of external and internal customers' (Moran & Brightman 2000, p. 111).

Change may be thought of as incremental and evolutionary, such as, the continuous improvement and quality improvement perspectives (Burnes 2013; Deming 1986; Miller & Friesen 1982; Robinson 1991) or radical and revolutionary, for example, the organisational transformation perspective (Levy & Merry 1986; McNulty & Ferlie 2004). It is also useful to note that the change and strategy literatures are deeply divided by disciplinary camps and their associated assumptions. For example: the psychological and sociological perspective takes a distinctly behavioural view of change, with a focus on organisational and group dynamics and organisational development (Cummings & Huse 1989; Lewin 1946; Schein

2009); the management and leadership disciplines tend to focus upon the capacity to plan, organise, and direct resources to affect change (Ackoff 2006; Drucker 1986; Fayol 1950; Kanter 1984; Kotter 1996; Miller & Rice 1967; Mintzberg 1979; Weihrich); and, the engineering management and industrial engineering perspectives concentrate on the systematic processes and methods required for change (Crosby 1979; Deming 1986; Juran & Godfrey 1998; 1945; Sink 1985).

This section on 'organisational strategy' begins with a broad introduction to some of the key types of strategy, followed by a more specific description of two prominent strategy perspectives: innovation and learning.

2.3.3.1 Strategy formulation, content & implementation

In the context of public service organisations, strategy has been described as: 'managing outwards' to the community, to consumers and to stakeholders, 'managing upwards' to political authorities, governments and bureaucratic administrators, and 'managing downwards or inwards' to staff in order to influence the performance of the organisation directly (Moore 1995, p. 73). The literature also distinguishes between elements of strategy: strategy formulation; strategy content; and strategy implementation (Walker 2010b).

Strategy formulation refers to the *process* that is used to develop strategy for change. It relates to the ways in which organisational leaders and members may make decisions, selecting various strategic objectives and actions over alternatives, and planning for their introduction and execution. Strategy content, on the other hand, relates to the 'pattern of action through which [*organisations*] propose to achieve desired goals, modify current circumstances and/or realise latent opportunities' (Rubin 1988, p. 88). Of particular relevance to strategy content in health care is the literature on quality improvement, which in many ways, can be seen as a catch-all category for any 'pattern of action' that might be hypothesised to bring about change and improvement. This might include anything from hospital accreditation schemes (taking a management view of change), to theories for the improvement of organisational culture (from the psychological and sociological perspective), or engineering-type models for 'scientific management' (Kringos et al. 2015). Many of the models discussed within the quality improvement literature relate more closely to improvements within divisions of an organisation, rather than performance improvement at the overarching organisational level of analysis.

Often these 'patterns of action' relate to theories or practices imported from outside of the organisation itself, or indeed, from outside health care altogether. As an example of isomorphism (see 2.3.1.4) strategy content many be taken from popular management literature, grey literature, the academic literature, or lessons from other (often high-performing) organisations. For instance, each of the five prominent health care quality improvement models identified by Powell, Rushmer and Davies (2009) were originally devised and developed (by engineers) outside of the health context: Total Quality Management (TQM)/ Continuous Quality Improvement (CQI); Business Process Reengineering (BPR); IHI and rapid cycle change (Plan-Do-Study-Act (PDSA)); Lean Thinking; and Six Sigma.

As an example, 'Lean Thinking' describes a pattern of strategic actions that are intended to bring about organisational process improvements through the reduction of waste and the concentration of organisational efforts on activities that provide maximum value to the consumer of the product or service (Radnor, Holweg & Waring 2012). A large push to adopt Lean Thinking within other industries occurred thereafter, and in health care industries (both private and public) from the early 2000s (Joosten, Bongers & Janssen 2009). However, the degree to which Lean's application to health care was successful is frequently debated (Andersen, Rovik & Ingebrigtsen 2014; Po et al. 2019; Radnor, Holweg & Waring 2012). This example outlines two important points: first the tendency for governments and organisations to fixate upon strategy content, perhaps to the detriment of other aspects of strategy (for instance, the requirements of implementation); and second, the limitations of borrowing or generalising theory from one context to another. Challenges associated with the latter are discussed in detail in Appendix L, as relating to the policy and practice implications of this study canvassed in Chapter 9.

Strategy implementation relates to the process of communicating, interpreting, adopting and enacting a planned strategy (Noble 1999, p. 120). Compared with strategy formulation and strategy content, research on implementation was a far later addition to the scholarly literature (Noble 1999). Specific to the health and care research fields, the rapid rise of 'implementation science' (IS) / 'implementation research' (IR) from the early to mid-2000s (Peters et al. 2013) somewhat made up for these earlier oversights (Braithwaite, Marks & Taylor 2014). IS/IR emerged from observations and concerns that although breakthroughs in medical and health-related research were frequent and ongoing, the rate of their translation to policy and practice was often sluggish (Peters et al. 2013). From a theoretical perspective,

IS/IR often borrows from existing sociological, psychological, organisation theory or business and management disciplines, however some theories native to IS/IR have been developed. Broadly, theories can be distinguished as belonging to i) process theories (which describe or guide the process of translating research into practice – in many ways similar to the 'change management' literature (Al-Haddad & Kotnour 2015); ii) outcome theories (explaining what sorts of factors or determinants influence implementation outcomes – similar to the 'context' literature featured in Sections 2.3.4.1 and 2.3.4.2 of this chapter); and iii) evaluation theories (with a view to evaluating implementation efforts) (Nilsen 2015). IS/IR is mentioned here as a highly relevant component of the overarching understanding of strategy for organisations however, generally, IS/IR focuses upon strategy at the micro (project) level rather than at the meso (organisation performance) level overall, and for this reason, specific theories related to IS/IR are not detailed here.

2.3.3.2 Innovation

Innovation involves a process of creating, developing, and reinventing new ideas, objects or practices, and then adopting and implementing these for routine use (Aiken & Hage 1971; Kimberly & Evanisko 1981; O'Toole 1997; Rogers 1995). Various types of innovations have been identified and proposed within the literature, however the distinction between these types is often more fuzzy than crisp (Walker 2010a). Further, they may also be dependent upon a series of change enablers or other contextual factors (Al-Haddad & Kotnour 2015).

'Organisational process innovations' address *how* services are rendered, which may involve the adoption of new rules, roles, procedures, structures and communications among staff or between staff and the external environment (Damanpour, Szabat & Evan 1989; Edquist, Hommen & McKelvey 2001). 'Organisational innovations' are said to relate to changes in the fundamental social system, including structural innovation, strategy and overarching administrative processes (Damanpour 1987; Walker, Jeanes & Rowlands 2002). 'Administrative process innovations' are concerned with new mechanisms for motivating and rewarding staff, the process for devising strategy, and changes to the organisation's management processes (Daft 1978; Hipp, Tether & Miles 2000; Light 1998). 'Marketisation innovations' relate to the modification of an organisation's operating processes in order to increase the efficiency and effectiveness of service delivery (Schilling 2010).

In the health and public sector context, these types of marketisation innovations relate to the New Public Management (NPM) style of reforms that were introduced in the 1980s and 1990s, which attempted to make public services more business-like and commercially oriented (Ashworth et al. 2013). In contrast, 'technological innovations' introduce new elements to an organisation's service operation, including new information systems, devices, or equipment. And lastly, 'ancillary innovations' involve working across organisation-environment boundaries (Damanpour 1987). Successful adoption of the innovation is therefore reliant upon factors outside of the control of the organisation itself, such as inter-organisational collaboration, knowledge sharing, and formal or informal partnership agreements.

As suggested above, some scholars regard the typology of innovations as more artificial than real (Edquist, Hommen & McKelvey 2001). For instance, medical innovation may at one level involve a technical innovation (e.g. an introduction of a new device and clinical technique for surgery), however when seeking to implement and spread this new innovation, various organisational and administrative process innovations may also be required to accommodate the change (e.g. new clinical procedure, a change in role or HR classification, new standard of accreditation). Further, in contrast with private sector innovation, public sector innovation is considered to be more evolutionary and incremental in nature (Walker 2010a), and is often characterised by a tendency to imitate new ideas or practices from an external organisation or industry, rather than the development of innovations 'in house' (Aldrich & Ruet 2006).

Theorised explanations for the association between innovation and organisational performance draw on three distinct perspectives: the performance gap theory; the resource-based view (not described in detail here, see Section 2.3.2.5), and diffusion of innovations theory. Briefly, the performance gap theory suggests that innovations are always implemented within public organisations in relation to a 'felt need' (Rainey & Ryu 2004). That is, where a difference between actual performance and desired performance exists, motivation for change arises which provides an opportunity for new innovations to take root.

The long-standing diffusion of innovations literature suggests that contextual, organisational and individual variables are able to explain how, why and at what rate an innovation may be taken up as standard practice in order to influence performance results (Rogers 1995). The founding theorist, Everett Rogers, was a professor of communication

studies, and working from this perspective he proposed four key elements that influence the spread of an innovation: the nature of the innovation itself; the communication channels; time; and the social system within which the innovation takes place. Evolving from this original theoretical base, the notion has been used extensively (and broadened substantially) in public health contexts (Djellal & Gallouj 2005). In mapping the various conceptual and theoretical understandings for the spread of innovations in service organisations, Greenhalgh and colleagues (2004) differentiated between the more passive and emergent 'let it happen' perspectives, the more directive 'make it happen' perspectives, and the more moderate 'help it happen' perspectives. At the more passive end of the spectrum, the spread of innovations is conceptualised as less predictable, more adaptive and self-organising, and key theoretical paradigms include complexity thinking, knowledge construction, and sense-making. This is contrasted with the more 'scientific' extreme, which considers innovations capable of being upscaled through orderly, planned, regulated systems that are administered 'top down'. The latter approach is embraced by proponents of scientific management, re-engineering, and cascading dissemination. The more moderate perspective favours the role of influence and enablement for change, through social and technical mechanisms including diffusion, negotiation, and knowledge transfer (Greenhalgh et al. 2004).

2.3.3.3 Learning

To paraphrase Huber (1991, p. 126), learning occurs when an organisation acquires knowledge that it recognises as potentially useful. Huber identifies four processes necessary for this to occur: knowledge acquisition; information distribution; information interpretation; and organisational memory. Much of the literature differentiates between 'organisational learning' as opposed to 'the learning organisation'. The former relates to the ways in which an organisation develops, organises and uses knowledge for improvement (i.e. it describes what the organisation *does*), whereas the latter characterises an organisation that purposefully develops structures and strategies in order to maximise the process of organisational learning (essentially describing what the organisation *is*).

The notion of the learning organisation is popular with management consultants (Garwin 1993), and indeed, the theory is multi-disciplinary and captures many of the complex multi-factor interdependencies between various components of an organisation (environment, structure, leadership, staff, teams, incentives, knowledge, technology, etc.)

(Senge 1995; Serrat 2017). The five critical elements of learning organisations include: establishing and communicating a clear vision, direction and purpose; empowering employees (at all levels of the organisation); sharing internal knowledge; gathering and integrating information from the external environment; and, challenging the status quo and supporting creative problem-solving (Senge 1995; Shin, Picken & Dess 2017). However, the model has been subject to little empirical investigation.

The differentiation between 'single-loop' and 'double-loop' learning may also align with the divide between organisational learning and the learning organisation. Single-loop learning refers to instances in which errors may be detected and then corrected as a reactive exercise. In contrast, double-loop learning refers to a more radical process involving the use of new information to inform changes in organisational norms, policies, procedures and practices. This might also correspond with the notion of continuous improvement, in which double-loop learning becomes an ongoing routine of the organisation (Robinson 1991), and in that way, it begins to describe attributes more so than strategies of the organisation (e.g. organisational capabilities). It could be argued that the notion of the learning organisation provides the supporting structures and routines necessary for continual double-loop learning, whereas organisational learning simply refers to the process rather than the enabling structure.

Knowledge Management (KM), much-researched in its own right, is an important component of organisational learning theory (Downe, Hartley & Rashman 2004). KM refers to 'the process of applying a systematic approach to the capture, structuring, management and dissemination of knowledge throughout an organization to work faster, reuse best practices, and reduce costly rework from project to project' (Dalkir 2017). The study of knowledge management emerged alongside the increasing computerisation of workflows and radical advances in electronic systems and information technology. However, as a result, this may have encouraged scholars to view knowledge as an explicit object (rules and facts capable of codification) rather than acknowledging the more tacit (personal, contextual, difficult to articulate and measure) dimensions of knowledge (Nonaka 1994). The health care sector, however, continually grapples with both explicit and tacit forms of knowledge. For instance, hospitals and health care organisations must store and be able to easily retrieve ever-increasing volumes of digitised information (explicit knowledge), which is often produced by different parties and organisations using different systems and drawing on

different cultural norms (e.g. general practice, pathology, clinical specialist, allied health, clinical registries). However, health care organisations also work at the edge of uncertain knowledge, as epitomised by the need for *experienced* clinicians to form clinical diagnoses for complex cases, and the need to train new health professionals via more tacit means (i.e. following, observing and emulating experienced clinicians) after years of studying more explicit forms of clinical fact.

Various mechanisms for transferring knowledge between groups and individuals are discussed in the literature, canvassing a broad range of approaches including those that are more emergent or more structured; voluntary or imposed (Easterby-Smith, Crossan & Nicolini 2000). Processes that are less structured for social learning include simply setting aside time for employees to network and reflect (Senge 1995), or coming together in 'communities of practice' whereby people who share a common interest come together regularly to exchange ideas and (often loosely) work towards improved ways of doing things (Li et al. 2009a, 2009b; Wenger 1999). More structured (although still often voluntary) approaches might include benchmarking between peer organisations to compare processes and performance criteria (Drew 1997). In health care, learning that is imposed 'top-down' often relates to evidence-based best practices (e.g. hand washing) which might be linked to government accreditation (e.g. hand hygiene audits) or performance targets (e.g. reduced rates of hospital-acquired infections). The transfer of knowledge within health care settings is associated with a particular set of challenges, largely attributed to the many administrative units (wards or departments that often operate as 'silos') and distinct layers of sub-culture that operate within health care organisations, including strong barriers between different professional groups (e.g. medical, nursing, allied health, administration) (Currie, Waring & Finn 2008; Dopson 2006).

The theorised link between organisational learning and performance improvement is 'negligible' (Bate & Robert 2002). In other words, the association is often implicit or assumed rather than explicit and 'testable'. Some authors have even fallen into tautological traps, arguing that organisational learning is evident where performance improvement has taken place (Dodgson 1993). Perhaps the difficulty is due, in part, to the fact that learning can be viewed as both a *process* and an *outcome*, offering additional layers of complexity to theoretical conceptualisation (Downe, Hartley & Rashman 2004). Further, conceptualising and measuring 'fuzzy concepts' (Klir & Yuan 1995) such as tacit knowledge, or attempting to

map how this knowledge spreads in complex networked systems, is no easy task (Spector & Davidsen 2006). Where research *has* tested the link between learning and performance, it has often concentrated on learning at the level of the individual member of an organisation rather than organisational learning as a whole (Vince 2000). Other theories have tended to favour the more 'contextualist' perspective, suggesting that the presence of various conditions or enabling factors allow for learning to take place (Child et al. 2019; Finger & Brand 1999). Contextualist theories are discussed later in this chapter.

2.3.3.4 Critique of strategy explanations

Something as complex as whole-of-organisation performance improvement is rarely achieved by adopting a single strategy. This points to a major limitation of the strategy perspective and associated theories. The strategic lens tends to focus on deliberate actions that are taken at one level or division of an organisation, or during a discrete period within an organisation's history. This perspective overlooks the broader shifts that may have contributed to organisational performance outcomes, the combinations of deliberate and less deliberate actions, the multitude of enabling or inhibiting factors for improvement, and the capacity for a slower pace of change than ordinarily measured within strategy research. In particular, the assumption that decision-making and action within organisations is (and ought to be) rational, logical, pre-planned and capable of voluntaristic control, is a key shortcoming of most explanations put forward by the strategy and change management perspectives.

2.3.4 Multi-factor explanations of performance

Some explanations or theories neatly fit within the environment-attribute-strategy categories. Other explanations might blur the categories a little or may tend towards one category more so than others. Other theories cross more fluidly between each of the categories. This section introduces and describes explanations that traverse environment, attribute and strategy categories, including those from a more reductionist view (e.g. identifying all of the factors or determinants across these categories) as well as more synthetic understandings of the interconnections between factors, such as complexity theory.

Theoretical Pluralism

In relation to these more synthetic explanations, it is also worthwhile pausing to briefly introduce the notion of theoretical pluralism, often characterised as the practice of viewing a

research topic or phenomenon through multiple theoretical 'lenses', thereby bringing various (often contradictory) perspectives and assumptions to the research process (Midgley 2011). In opposition to theoretical 'compartmentalisation', which often treats theories as rivals, theoretical pluralism recognises opportunities to examine the interaction and interplay between various different theories and theoretical perspectives, including how theories may be partnered or combined to extend the reach or scope of explanations (Astley & Van de Ven 1983). There are, however, certain risks associated with either compartmentalisation or integration of theories.

The dangers of compartmentalisation include: the narrowing and fracturing of research knowledge; the tendency for very similar concepts or theories to be presented (including discipline-specific terminology with substantial conceptual overlap with terminology used by other disciplines) without adequately contesting or integrating this knowledge; and the lack of support for interdisciplinary ways of working (Mick & Shay 2014b, p. 47). However, although theoretical pluralism may help to overcome these challenges, it also risks creating a patchwork of theories that may superficially align, whilst simultaneously bringing together conflicting sets of ontological and epistemological assumptions that may undermine the utility of theoretical integration. Further to this, although in the spirit of theoretical pluralism a researcher might *intend* to examine a research phenomenon from multiple perspectives, they may also be overly quick to eliminate certain theories that do not align with their personal sets of assumptions, thus introducing a hidden bias to the process (Astley & Van de Ven 1983; Midgley 2011).

Even among broader organisational and management researchers, understandings of how various theories and perspectives might interact have only recently begun to mature (Mick & Shay 2014b, p. 1). The field cannot truly be characterised as multi-theoretical, as there is limited progress beyond the more simplistic pairing of two theories (e.g. the convergence of resource dependence theory with institutional theory (Mick & Shay 2014b; Oliver 1991). And further, just as the use of organisation theory within health service research has lagged behind the broader field, so too, theoretical pluralism is rarely employed by health services researchers. To correct this, Mick and Shay (2014b, pp. 283-296) make several recommendations for the future of multi-theoretical research efforts as applied to health care contexts: i) to engage in a simultaneous examination of relevant levels of analysis within an organisation (e.g. ward, department, hospital and system-level factors); ii) to integrate and

synthesise the competing logics that emphasise standardisation of practice in health care contexts, versus adaption and personalisation; and iii) to consider the overall value in integrating (older) 'classic' theories that relate to potentially superseded organisational forms and dilemmas, versus the establishment of newer, more localised, problem-driven theories.

2.3.4.1 Organisational factors: multiple explanations side-by-side

One way to bring together disparate explanatory variants is to identify and examine the full scope of factors that might be party to a particular process, outcome or other research phenomenon – thus (either intentionally or inadvertently) spanning the content of multiple theoretical perspectives. For example, Brand et al. (2012) conducted a literature review of the hospital characteristics associated with performance and performance improvement. The authors identified 16 categories across three domains: environmental factors (regulations, financial incentives, market characteristics); structural characteristics (network membership, funding model, teaching status, geographical setting, service size); and operational service design (innovativeness, leadership, organisational culture, public reporting and patient safety practices, information technology systems and decision support, service activity and planning, workforce design, staff training and education). The problem with this approach is that many scholars do this somewhat naively, without adequately linking established academic theory to the identified categories of factors or barriers/enablers (Addington et al. 2010; Edmondson 2004; Kitson, Harvey & McCormack 1998; Pablo et al. 2007; Parnaby & Towill 2008). As Pettigrew described, this is no better than creating 'shopping lists of factors' (1985, p. 23) which ignore the *process* of change, and the temporal interplay between various organisational elements and their contexts. To further this metaphor, shopping lists may indeed reveal the ingredients but say little about the precise process, timing and conditions required for a successful (organisationally transformative) soufflé.

Grol and Wensing (2004) provide a notable exception. Their article explicitly mapped common factors identified inductively within change studies, against existing scholarly theories (e.g. theories of motivation, leadership theory, quality management etc.). Even less common, however, are attempts to examine the interplay between categories of factors and their corresponding theoretical roots. Sheaff et al (2003) offer a rare example, providing an appraisal of: the literatures on environmental, structural and process-level categories of

factors; the relationships between these sets of factors and organisational outcomes; and, evidence for the interactions between each of these factor-categories (e.g. relationships between organisational environment and organisational process). However, unfortunately this treatment of factor-interaction is less concerned with theory than evidence, and shies from the issue of process and timing, further underlying Pettigrew's (1985, p. 15) observation that most change research remains 'a-theoretical', 'a-contextual' and 'a-processual', or suffers from at least one of these maladies.

The Consolidated Framework for Implementation Research (CFIR) (Damschroder et al. 2009) offers an overarching (metatheoretical) typology for implementing improvements in health care settings. Of interest, is the authors' *deliberate* decision to list key constructs (factors) that are believed to influence implementation, without providing any explanation as to the interaction between these constructs. That is, without attempting to understand how and why various factors or constructs might work within various contextual settings. Far from a naive choice, the authors argued that this allows researchers to 'select constructs from the CFIR that are most relevant for their particular study setting and use these to guide diagnostic assessments of implementation context, evaluate implementation progress, and help explain findings…', and in doing so, advance the field by providing a consistent taxonomy and set of constructs and definitions (Damschroder et al. 2009). In other words, the CFIR framework does not attempt to solve the issue of context by prescribing a set of universal factors, but by offering a typology of factors for context-specific tailoring. Although this may offer one solution to the problem of context, like most theories of change and factors for change, the issue of *process* is treated somewhat superficially. Offering simplistic representations of the change process as some sort of linear progression creates an implicit assumption that factors influencing change in a positive way (enablers) were due to deliberate or conscious decisions made by change agents and leaders, rather than unfolding in a more haphazard, unintentional or opportunistic way.

2.3.4.2 Factor-interactive theories: multiple explanations integrated

In contrast to the approach of the CFIR, noted above, it is worth introducing a number of health service-specific theories, frameworks and models that attempt a more integrative understanding of change and improvement factors. Building upon Pettigrew's seminal context-context-process model (1985), the strategic change model proposed by Pettigrew,

Ferlie and McKee (1992) suggested that 'receptive' and 'non-receptive' contexts for change help to explain variability in the rate and pace of improvement within the NHS. Eight interlinked 'signs and symptoms' of receptivity were identified.

The first sign was identified as the quality and coherence of policy, at both analytic (data-driven) and process (policy localisation and negotiation) levels. The second and third relate to the availability of key people leading change, and the presence of intense and large-scale environmental pressure (e.g. financial crisis), respectively. The fourth relates to a supportive organisational culture, in particular, managerial capacities to: i) work flexibly across boundaries with less emphasis on hierarchy, rank or status, than on skill; ii) take risks; iii) value the role of research and evaluation; iv) work with a strong, cohesive value-base; v) maintain a strong, positive sense of achievement. The fifth and sixth relates to the quality of managerial-clinical relationships, and the existence of co-operative interorganisational networks. The seventh relates to the simplicity and clarity of goals and priorities, including the capacity to insulate the core organisation from shifting, short-term pressures from the environment. Finally, the eighth relates to the fit between the change agenda and characteristics of the local community within which the service operates (e.g. workforce, teaching hospital status, local political culture). The authors suggest that these conditions are linked, in the sense that they 'cannot be conjured up over a short period of time through the pulling of a single lever. The past weighs a heavy hand in determining local perceptions, and layers of competence emerge only slowly to enable and protect champions of change.' (Pettigrew, Ferlie & McKee 1992, p. 28). Although there is an awareness of interactivity, there is little more detail offered, however, as to the *mechanisms* of interaction between each of these factors, and the ways in which they may unfold over time.

The 'meta-theoretical model for transformational hospital change' presented by Lukas and colleagues (2007) (extending the earlier 'multi-level' theorising on organisational change pioneered by Nelson and Whitcomb (2002) and (Poole & Van de Ven 2004)), offers another somewhat similar treatment of both context and process for change. Based upon existing theory and their own empirical study, Lukas et al (2007) suggested that there are common (interactive) factors that appear to be critical to the transformation of patient care: i) impetus for change; ii) commitment of leaders to quality care; iii) the active and meaningful engagement of staff in improvement initiatives and associated problem-solving; iv) alignment and consistency between organisational goals, resource allocation, and actions at all levels of

the organisation; and v) organisational integration in order to bring together departments and components of the organisation. Authors argued that the combination and interaction of these factors create change, slowly and iteratively, by shaping and acting upon the organisation's: vision and strategy; cultural values and norms; operational functions and processes; and, infrastructure. Again, however, there is little further reflection on the process of factor-interactivity.

Other models, such as the PARIHS framework (Rycroft-Malone 2004), share similarities with the two introduced above, however are more relevant to the micro than meso level of analysis.

2.3.4.3 Complexity theories

> *In the case of all things which have several parts and in which the whole is not, as it were, a mere heap, but the totality is something besides the parts. – Aristotle,* Metaphysics *in (Scaltsas 1994)*

Complexity theory (or theories) could be said to refer to a family of related theoretical variants (e.g. chaos theory, dissipative structures theory, complex adaptive systems theory), each stemming from the earlier 'systems theory', and bound by a distinct scientific paradigm or worldview rather than representing a single or unified theory (Burnes 2005). Christian von Ehrenfel's famous summary of the above quotation: 'the whole is more than the sum of its parts' (Capra & Luisi 2014, p. 10) is regarded as the key catch-phrase for the systems and complexity lens. Systems and complexity worldviews assert that entire systems ought to be the focus of study, therefore opposing the science of reductionism which aims to study discrete, isolated, and seemingly context-free variables. As such, complexity theories often function to integrate and synthesise rather than reduce, and as a result, are well-positioned for trans-disciplinary research and theoretical pluralism (Burnes 2005; Montuori 2013). In the context of scientific research, complexity theories are concerned with explanation rather than description (which tends to be more interpretivist) or prediction (tending towards positivism) (Paley & Eva 2011). Further, in the context of Hedström's (2005) typology of explanation, complexity theories favour mechanism-based explanations over 'covering-law' or 'statistical explanations' (Paley & Eva 2011). In this sense, complexity theory is highly compatible with the aims of critical realism (Byrne 1998).

Although definitions of complexity theory/thinking/science remain elusive, Burnes (2005, p. 77) provides a succinct summary of the key components of the complexity worldview:

> *Complexity theories are concerned with the emergence of order in dynamic non-linear systems operating at the edge of chaos: in other words, systems which are constantly changing and where the laws of cause and effect appear not to apply… Order in such systems is seen as manifesting itself in a largely unpredictable fashion, in which patterns of behaviour emerge in irregular but similar forms through a process of self-organization, which is governed by a small number of simple order-generating rules…*

The notion of the 'complex adaptive system' is particularly suited to the study of social settings and organisations, and has been applied by various scholars to the health care context (Zimmerman 2011). Interestingly, the complexity lens is rarely applied to the whole-of-hospital organisational setting with the specific purpose of examining hospital performance. Rather, most complexity studies in health care have sought to illuminate mechanisms at lower levels of analysis (to understand particular projects or interventions, or dynamics within discrete divisions or departments of a hospital, for example: Braithwaite et al. (2017a, pp. 57-59); (Kannampallil et al. 2011).

From the complexity perspective, aggregates of multiple heterogenous agents (people) are understood to function in ways that are: dynamic (constantly moving beyond the point of equilibrium); massively entangled (producing non-linear and unpredictable changes); emergent (exhibiting self-organisation, as components of the system interact and produce novel outcomes); and robust (self-altering in response to feedback, resulting in high levels of system resilience) (Begun, Zimmerman & Dooley 2003). From this perspective, the idea that organisational improvements might flow from the comprehensive, top-down planning activities of managers appears far less feasible. Rather, complexity thinking might suggest a broader focus on the system as a whole, with simple goals, minimal specification, and a somewhat opportunistic approach that can readily adjust to unpredictable changes, external influences, and/or the behaviours or various agents as they arise (Plsek & Wilson 2001). For example, Grol (2007) suggests that a hospital infection control project that is facilitated from a complexity perspective might recommend against specifically targeting the hand-washing routines of nurses. Rather, it may be more effective to set broad-targets for change, closely observe the system, learn what might constitute major incentives for altered behaviour, link

desired behaviours to these incentives, and test the effect of introduced incentives with a view to iterative learning rather than immediate outcome.

Braithwaite and colleagues (2017) highlight the value of the complexity perspective in challenging the notion of 'command and control' leadership for improvement. Noting the successive attempts to create standardisation in health care organisations that have 'fail[*ed*] miserably', authors criticised the prevailing mindset for controlled change: 'as if there is a direct relationship between issuing an instruction and uniform take-up…' (Braithwaite, Churruca & Ellis 2017, p. 392). As with many other proponents of complexity thinking for health care (Cribb 2018; Gerrits & Marks 2015; Kitson et al. 2018; Plsek & Greenhalgh 2001; Wilson, Holt & Greenhalgh 2001; Zimmerman 2011), Braithwaite and colleagues (Braithwaite, Churruca & Ellis 2017; Braithwaite et al. 2017a; Braithwaite et al. 2017b) tend to frame the key problem as one of worldview, and the key solution as a paradigm shift towards a way of thinking that is less mechanistic (i.e. based upon assumptions that organisations are fundamentally similar to machines with parts that can be controlled and fixed), and more organic or ecologically-oriented (i.e. accounting for the influence and interconnection between many agents, whose behaviours are non-linear and cumulatively unpredictable).

There are, however, a number of important criticisms of complexity theory, particularly the ways in which the complexity lens, which originated in the natural sciences, has been applied (or mis-applied) to social research. For instance, Paley and Eva (2011) are highly critical of the ways in which the notion of 'self-organisation' has been interpreted by health service researchers. The concept of self-organisation within the natural sciences does not account for human intentionality: '[*self-organisation is*] the emergence of structure through the activity of microscopic units that do not have access to the global pattern' (Cilliers & Spurrett 1999, p. 94). For example, the synchronous flight of birds in a flock is the result of aggregated individual behaviours following a set of simple (instinctual) rules (e.g. maintaining a minimum distance from other birds, matching velocity, and movements directed towards the perceived centre of the flock), rather than an overarching and purposeful design (Paley & Eva 2011). Popular complexity notions such as 'swarm intelligence' (Krause, Ruxton & Krause 2010), for instance, may be problematic when applied to human agency and intentionality if a direct equivalence between animal instinct and human intentionality is assumed. In this sense, the advice of Grol et al (2007) (as mentioned

above) to form broad targets for change and to consider incentives may indeed fall into the human intentionality trap.

Acknowledging (yet not being defeated by) the differences between social and other phenomena, physicist and biologist, Capra and Luisi (2014), suggest bridging this gap by 'extending the systems approach' (p. 301) to the social domain, with modifications and additions to the complexity lens rather than an abandonment of the approach altogether. They suggest that the existence of *meaning* in human social contexts forms an additional dimension to the dynamic of complexity (Capra & Luisi 2014, p. 304), which inevitably changes the ways in which complexity theories must be applied to social settings. With meaning comes individual agency and purpose, and at the level of the group, this translates to the use of symbol, the emergence of cultures, and the generation of power structures. They argue that although the addition of human meaning may change the nature and dynamic of complexity, the persistence of three other elements that are fundamental to all living systems (form/pattern of organisation, matter/material structure, and process) allows for a large degree of theoretical coherence between the natural and social sciences.

Other key criticisms of the complexity lens include the particular difficulty using or testing complexity theory statistically within social settings; and as a consequence, the tendency for social science researchers to use complexity theory simply as a metaphorical device to illuminate and offer theoretical insights, rather than acting as a 'testable' theory for empirical research (Byrne 2005).

2.4 CONCLUSION

This chapter sought to provide an overarching review of the theories relevant to hospital performance and performance improvement. The chapter first examined the nature of theory itself and its role within organisational research. The environment-attribute-strategy conceptual framework was presented, providing the necessary scaffolding for a critical review of the theories, models and frameworks relevant to health care and hospital performance. A number of key observations and conclusions were drawn from the review: i) the theoretical landscape is vast; ii) there are a large number of explanations or theories that relate specifically or predominantly to single categories of factors (e.g. environment or attribute or strategy); iii) there is less focus upon multi-factor explanations for hospital/organisational

performance, resulting in an overall poorer understanding of the interaction between factors that may bring about certain performance outcomes.

The conceptual framework and review of theories presented herein provides the structural scaffolding for a second review of the literature (as per Chapter 3), in which empirical support for relevant explanations are examined.

3 LITERATURE REVIEW: REALIST REVIEW OF EMPIRICAL KNOWLEDGE

> *I like the scientific spirit—the holding off, the being sure but not too sure, the willingness to surrender ideas when the evidence is against them: this is ultimately fine—it always keeps the way beyond open—always gives life, thought, affection, the whole man, a chance to try over again after a mistake—after a wrong guess.*
>
> — Walt Whitman in Whitman, Teller and Traubel (1973)

This chapter offers an assessment of the volume and quality of evidence for explanations relevant to the topic of hospital performance and performance improvement. Importantly, the chapter provides an assessment of evidence as it *existed* at the time of study design development. That is, the snapshot of evidence presented here provides the scientific rationale for the research questions that were devised and research approach developed for the original study (see Chapter 4). Relevant evidence published after this stage of the research process is noted in the discussion chapters of this thesis.

The chapter is structured in three parts. The first part details the aims and methods of the review, the second part describes the main findings of the review, and the third part reflects upon and discusses these findings. A discussion of the strengths and limitations of the review method is provided within Chapter 9 alongside a broader discussion of the strengths and limitations of the overall thesis.

3.1 AIMS AND METHOD OF THE REVIEW

The review was designed as a review of reviews (umbrella review) and was approached from a critical realist perspective, taking a close adaptation of the RAMESES realist synthesis method (Wong et al. 2013). The review also complied with the PRISMA checklist for systematic review (Moher et al. 2009), as far as the RAMESES guidelines would allow.[5]

[5] PRISMA Item 5 - the use of a review protocol - was not completed as part of this review. This is due to the necessity within a RAMESES realist review (Wong et al. 2013) to amend and iterate the review method throughout the process (e.g. by adding in new search terms or performing 'snowball' searches, as new relevant information is returned during the search phase of the review). To assess risk of bias (PRISMA items 12, 19, 22) the current review used an adapted version of the Critical Appraisal Skills Program (CASP) checklist (Black et al. 2011) was used.

The review was structured around the environment-attribute-strategy conceptual framework adapted from Ashworth et al (2010) and presented in Chapter 2. The review was guided by four questions:

1. What credible evidence exists for each of the explanations (theories, models, frameworks) related to hospital performance and performance improvement?
2. How has the literature discussed the relationship between various explanations, theories and hypotheses for hospital performance, including multi-factor explanations, and the interactive or cumulative effect of multiple explanations operating together?
3. How have context-mechanism-outcome relationships been discussed within the existing literature?
4. Based on the findings of this literature review, what guidance is offered to the current study?

All stages of the review process were conducted by a single reviewer, with the exception of the quality appraisal.

3.1.1 Rationale for using realist synthesis

Realist synthesis was developed as an alternative method to systematic review, offering a more context-sensitive and iterative approach to the assessment and conceptual integration of complex social phenomena (Pawson 2006; Popay et al. 2006). In particular, realist synthesis seeks to illuminate and critically examine the various hypotheses that exist about a phenomenon or particular outcome of interest. Further, this examination assists in the development of a pragmatic explanation as to why a specific outcome might occur, and to help form a more general understanding of which strategies or interventions may bring about a desired outcome for whom, in what circumstances, and why (Greenhalgh 2014, p. 264).

Some minor adjustments to the realist review method were necessary due to the focus of this review on performance (more generally) rather than the customary focus of realist syntheses on the programs or interventions that may influence performance (more specifically).

3.1.2 Changes during the review process

Initially, the focus of this review was limited to public hospital performance. The scope was later broadened to encompass public or private hospital performance, due to a tendency in the review article literature to combine public and private hospital research in ways that often make it difficult to differentiate between the two. For this reason, a small number of early

searches were discarded and repeated with revised search terms (as shown in Appendix B). As mentioned below, this may have implications for the degree of consistency between reviewed studies, particularly, relating to varying notions of hospital performance between public and private settings.

3.1.3 Scoping the literature

A preliminary rapid scoping review was conducted in order to identify the full spectrum of explanations for hospital performance, and to develop the search strategy for RAMESES review. 210 citations were identified within the Scopus database using broad search terms on the topic of 'hospital performance'. 123 citations were screened by abstract and 63 articles were included by full-text. An analysis of the included articles resulted in the development of eighteen search categories, representing four multi-factor and fourteen single-factor explanations for hospital performance (see Table 4). The final categories of explanation were later refined following the full review (see Figure 3).

3.1.4 Searching procedure

Eighteen discrete search strategies were devised to correspond with the eighteen categories of explanation for hospital performance identified and developed in the earlier scoping review. These eighteen search strategies were used to query Scopus, PubMed, Cochrane and Google Scholar databases, with some key term adjustments made between databases, as necessary. A grey literature search was also conducted spanning seven key databases and industry websites (see Table 4 and Appendix B).

Common across each search strategy were the key words 'hospital' AND 'performance', which were used in conjunction with words specific to the particular category of explanation. For instance, for the 'leadership' category, the key words 'leaders*' OR 'senior management' OR 'top management' OR 'CEO' were added to the search string. A total of 112 separate searches were conducted. Database results were limited to peer-reviewed review articles published in any language between January 2000 and June 2017, filtered by 'Title/Abstract/Keyword' for Scopus and Cochrane databases and 'Title/Abstract' for PubMed. In Google Scholar, it was not possible to limit the search by field or to review articles only, and so 'literature review' was manually added to the search string.

Recognising the well-documented limitations of electronic database searching for complex or contested social science research topics (Greenhalgh et al. 2004) a 'relevance

protocol' was devised to manage the high volume of (often irrelevant) citation returns. The relevance protocol functioned to reduce the number of search results that were screened by title. This was achieved by applying the 'relevance' or 'best match' sorting feature within Scopus and PubMed, respectively, and abandoning discrete database searches after a minimum of 100 citations were screened with no relevant result (here a 'result' is defined as a citation download by screened abstract). In addition to this, 'snowball searching' was conducted, including a review of the reference lists of included articles and citation tracking within search databases and Google Scholar.

3.1.5 Selection and appraisal of documents

Papers were screened for inclusion in three phases: by title; by abstract; and by full-text. The following selection criteria was applied during all three stages of review, with increasing granularity at each screening: i) the paper relates to hospital performance as a dependent variable or outcome; ii) the paper is a review article or publication reporting a systematised search and selection strategy; and iii) the paper was published in any language, between January 2000 and June 2017. Although included papers were later screened for quality, methodological and reporting quality was not used as a criterion for inclusion, thus retaining explanations and theories that might otherwise have been missed. Similarly, articles whose primary aim and focus was not hospital performance *per se*, but did meet the criteria of 'relatedness' to hospital performance (for instance, publications on healthcare performance which included hospitals), were included. The issue of 'relatedness' was treated later in the analysis process through a graded assessment of each article's relevance to hospital performance. Table 4 summarises the search and selection procedure.

As alluded to, included papers were subject to a quality appraisal process (see Appendix B). The Critical Appraisal Skills Programme (CASP) checklist for systematic review was adapted to suit the objectives of the study, using prior modifications made by Black et al. (2011) as a basis. Each paper was scored (0=no or can't tell, 1=somewhat, 2=clearly) across thirteen equally weighted criteria, with a maximum score of 26. A second reviewer moderated the results of the quality appraisal in two stages. First, a random sample of 10 articles were blind-reviewed for comparison. Second, a non-blind review of a further 10 articles was conducted, stratified by score range and selected randomly within range categories. This provided a basis for discussion and moderation, and adjustment of scores

across the database by the primary reviewer. Assessment of risk of bias was not suitable given the aims of the current review.

Table 4 Search strategy and paper selection

Source	Keywords and search categories	Inclusion Criteria

Academic database:
- Scopus
- PubMed
- Cochrane
- Google Scholar
 	
Grey literature^:
- CRD
- AHRQ
- NY AMGLR
- NIHR
- Kings Fund
- IHI
- Health Foundation
	'hospital' AND 'performance', with multiple keywords derived from the following search categories*:
	- Environment:
	  - financial reimbursement
	  - demography
	  - regulation
	  - reputation
	- Attribute:
	  - governance
	  - leadership
	  - organisational culture
	- Strategy:
	  - planning
	  - financial strategy
	  - quality improvement
	  - innovation & IT
	  - human resources
	  - learning
	  - capabilities
	- Multifactor:
	  - contingency/ configuration
	  - complexity
	  - corporatisation
	  - turbulence
		Satisfying all three criteria:
		i. Related to hospital performance as a dependent variable or outcome
		ii. Review article, paper or publication reporting a systematised search and selection strategy
		iii. Published in any language between January 2000 and June 2017

**Note, search categories were refined and amended in response to search results (see Figure 3).*
^Abbreviations: CRD=Centre for Reviews and Dissemination, University of York; AHRQ=Agency for Healthcare Research and Quality; NY AMGLR=New York Academy of Medicine Gray Literature Reports; NIHR=National Institute for Health Research; IHI=Institute for Healthcare Improvement.

3.1.6 Data extraction and synthesis

A tailored data extraction form was used to record and collate data. Each included article was provided with an ID number and data extracted under the following headings: author, year, type (of publication), journal/publisher, discipline, review method, dates (of included studies), setting, explanation code, explanation description, outcome variable, linked factor/s, key findings, quality appraisal (by authors of the included study). It was at this stage that the categories (and codes) of explanation (i.e. 'Regulation', 'Leadership' or 'Quality Improvement') were finalised (see Figure 3).

Data was then synthesised in several stages, corresponding with each of the research questions underpinning this review. Popay et al. (2006) was used as a broad guide throughout the synthesis. First, data was grouped by category of explanation, and then each explanatory grouping (with the exception of the nineteen 'multi-factor' articles) was subject to a coding procedure with explicit decision-rules (see Appendix B), using 'low', 'moderate' and 'high'

classifications to determine: i) the relative volume of evidence; ii) the homogeneity (of study aims) and consistency (of evidence and conclusions); iii) the relevance of the literature (relatedness to the hospital setting); and iv) the methodological rigour and quality of the studies. This process helped to characterise the evidence for each category of explanation.

The key findings of each article within each grouping were then assessed and allocated to one of five categories relating to the association between explanatory categories and hospital performance: 'moderate positive', 'weak positive', 'no effect / mixed', 'weak negative' or 'moderate negative'. This was done for each of the five aspects of hospital performance included in this review: accessibility, effectiveness, efficiency, safety and quality, and performance (not specified). A 'vote count' tally (following Popay et al. (2006)) was then conducted to draw conclusions about the direction and strength of the evidence for each category of explanation. Explicit decision rules for coding, category allocation and 'vote tallying' are detailed within Appendix B.

Subsequently, a narrative synthesis was performed drawing on guidance from Greenhalgh (2004) and Greenhalgh (2014), and following an abductive approach. The discussion and conclusion sections of each included article were extracted and imported into NVivo 11, a computer-assisted qualitative data analysis software package. Initially, a number of preliminary (deductive) text queries were performed across the entire data set to highlight key data related to 'context' and 'mechanisms' (and synonyms).

Second, articles were re-grouped according to what (if any) testing or discussion occurred within the article about the interactions between the broad categories of explanation: environment; attribute; and strategy. Each article was allocated to either a single explanation grouping: 'environment'; 'attribute'; 'strategy' (and then discounted from further analysis); or a grouping that characterised interaction between the primary category or focus of explanation and another category: 'environment-attribute'; 'environment-strategy'; 'attribute-strategy'; or 'environment-attribute-strategy'. The discussion and conclusion sections of the articles within these latter four groups then underwent a thematic analysis (following Braun and Clarke (2006)) to identify how the hospital performance literature has discussed the relationships between various explanations and the potentially

cumulative or interactive effects of factors spanning multiple explanatory categories.[6] During the analysis, it became clear that the distinctions between these categories were less clear-cut, with some articles containing data relevant to multiple categories. With the exception of those articles discarded from analysis, all articles were subject to coding; however, not all articles within each category contained data relevant to the research question, and were therefore later discarded as part of the coding process. Twenty articles were included in the full analysis (indicated in bold in Figure 4).

The analysis did not account for the interactions between factors occurring *within* a broad category of explanation. For example, interactions between leadership and organisational culture (both of which belong to the 'attribute' category of explanation) were not analysed.

3.1.7 Results returned

Over 130,000 citations were returned from 112 discrete database searches. 9,631 of these citations were reviewed by title and, following exclusion, 180 citations were reviewed by abstract, one of which was published in Italian and another in German.[7] After duplicates were removed the full-text papers for 173 publications were sourced for in-depth review. A further 78 full-text articles were excluded either on methodological grounds (n=39) or for not adequately addressing hospital performance as a dependent variable or outcome (n=39) (see Appendix B). A snowballing reference search uncovered an additional three papers that met the selection criteria. Following the search and screening process (see Figure 3), a total of 98 articles were included in the review, and were coded to the sixteen categories of explanation for hospital performance.

[6] It is worthwhile noting that this initial use of the Braun and Clarke (2006) thematic analysis method is distinct from the later adaptation and use of their method, as part of the research design employed for empirical research within this study (see Chapter 4).

[7] One article written in Italian included an extended abstract in English and was able to be assessed, as such. Another article, published in German, was assessed with the assistance of an academic colleague who was proficient in the German language.

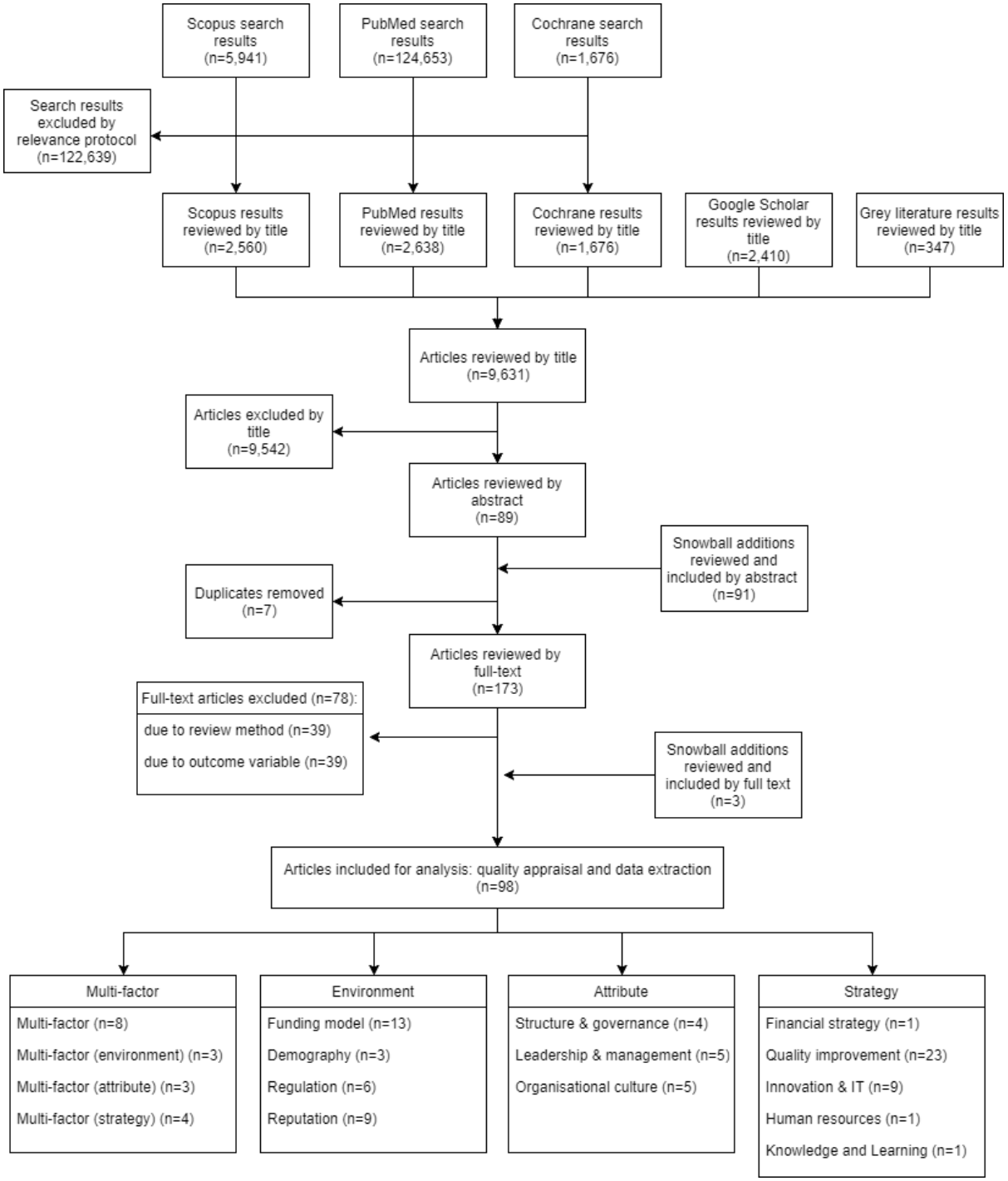

Figure 3 Literature search and selection flow chart

Further details associated with the initial scoping searches, the review search record, a record of exclusion by full text, a data extraction table, and the quality appraisal tool and record of quality appraisal (as adapted from (Black et al. 2011)) is included in Appendix B.

3.2 FINDINGS OF THE REVIEW

3.2.1 Characteristics of included studies

A review of the 98 included articles indicated a growing scholarly interest in the phenomenon of hospital performance, evidenced by an increasing number of publications on the topic (see Table 5 - characteristics of included studies). For example, despite searching for studies published from 2000 onwards, over 70% of included studies were published between January 2010 and June 2017. The majority of included studies were peer-reviewed systematic reviews (n=69), with a smaller number of 'systematised' reviews (n=21), systematic review of reviews (n=6) and meta-analyses (n=2). Ten grey literature articles were included, following a largely 'systematised' rather than systematic methodology. Here, 'systematised' refers to the use of research database searches with a consistent search strategy, however also affords the variation of that strategy in response to new information and the use of snowball searching or other more iterative search methods.

Perhaps due to the particular search databases used for this study, included articles were predominantly published in health service journals (n=75), with fewer publications spanning management, public management or social science disciplines. Over 36% of articles reviewed studies solely on hospital performance, whereas some studies were *predominantly* (27%) focused on hospitals, or they simply *included* (over 36%) studies in hospitals amongst other health care (primary care, community care, aged care) or public service settings. Similarly, most of the literature appeared to mix public and private sector health organisations (n=92). The degree of 'relevance' to the public health care context was therefore taken into consideration during data analysis (see Table 6).

The authors of approximately half of the included literature reviews had conducted a formal quality appraisal of the studies that were included within their reviews.

Table 5 Characteristics of included studies (n=98)

Characteristic	Number (n)	Studies (ID) *(see Appendix B for list of studies)*
Publication type		
Peer-reviewed	88	1-17, 19-27, 29-43, 45-56, 58-69, 71-73, 75-76, 78-83, 86-88, 90-98
Grey literature	10	18, 28, 44, 57, 70, 74, 77, 84-85, 89
Date of publication		
2000-2009	29	5, 19, 24, 27, 30, 37, 38-40, 42, 45, 51, 56, 59, 61, 63, 70, 73, 75, 77, 79, 82-86, 93-94, 96
2010-2017	69	1-4, 6-18, 20-26, 28-29, 31-36, 41, 43-44, 46-50, 52-55, 57-58, 60-62, 64-69, 71-72, 74, 76, 78, 80-81, 87-92, 95, 97-98
Review design		
Meta-analysis	2	27, 86
Systematic review of reviews	6	8, 14, 25, 29, 33, 52
Systematic	69	1-7, 9-13, 16-17, 19-20, 22-24, 26, 30-32, 34-43, 46, 48-49, 51, 53-59, 61-69, 71-75, 78, 81, 85, 87-90, 95-98
Systematised	21	15, 18, 21, 28, 44-45, 47, 50, 60, 70, 76, 77, 79, 80, 82-84, 91-94
Journal discipline		
Health	56	3-12, 14-18, 20, 23-36, 38, 41-42, 44, 48, 53, 55-57, 60, 62-65, 70, 72-74, 76-81, 83-85, 87-91, 93-95, 97
Medicine	17	1, 19, 22, 37, 39, 43, 46-47, 49, 58, 59, 61, 66, 68, 75, 82, 98
Nursing	2	51, 96
Management	5	21, 45
Other[#]	7	2, 13, 40, 50, 52, 54, 67, 69, 71, 86, 92
Setting		
Hospital	36	1-4, 6, 11-12, 14, 17-18, 20, 22, 24, 27, 34, 36, 38, 54, 57, 62, 66-72, 76, 80-81, 86-88, 91, 93, 98
Health predominantly hospital	26	5, 16, 19, 23, 25-26, 28, 30, 37, 39, 41-43, 48, 53, 48, 53, 56, 58-60, 64, 84, 94, 96
Health including hospital	34	7-10, 13, 15, 21, 29, 31-33, 35, 40, 44-47, 49, 51-52, 55, 61, 63, 65, 73-75, 77, 78, 79, 82-83, 85, 89-90, 95, 97
Public sector including hospital	2	50, 92
Sector		
Public	6	11, 34, 50, 55, 66, 92
Public & Private / unspecified	92	1-10, 12-33, 35-49, 51-54, 56-65, 67-91, 93-98
Quality appraisal (conducted by the authors of included studies)		
Appraisal conducted	47	1-4, 6-10, 12-14, 16-17, 20, 25-27, 29-37, 39, 41, 48-49, 52, 63-64, 68, 71-73, 75, 88-90, 93-96, 98
Appraisal not conducted	51	5, 11, 15, 18-19, 21-24, 28, 38, 40, 42-47, 50-51, 53-62, 65-67, 69-70, 74, 76-87, 91-92, 97

'Other' includes science and health or medical journals that are narrow in scope (epidemiology, medical informatics, health finance and health service human resources).

Definitions of 'hospital performance' were highly variable across the span of included articles. As relating to the five performance dimensions chosen for this review (accessibility, effectiveness, efficiency and, safety and quality, and 'other'), studies tended to focus upon financial performance (efficiency) and/or quality and safety rather than the accessibility or effectiveness of hospital services.

Drawing on the environment-attribute-strategy conceptual framework (see Figure 1 on page 19), various explanatory sub-categories emerged during the search process. Four explanatory sub-categories were used under the environment category: funding model; demography; regulation; and reputation. Three explanatory sub-categories were used under the attribute category: structure and governance; leadership and management; and organisational culture. Five explanatory sub-categories were used under the strategy category: financial strategy; quality improvement; innovation/IT; human resources; and knowledge/learning. A further four categories corresponding with multi-factor explanations were also used: multifactor across several categories; multi-factor (within the environment category); multi-factor (within the attribute category); and multi-factor (within the strategy category).

As viewed across all categories of explanation, a comparatively large quantum of evidence was found for explanations relating to: funding models; reputation (public reporting of performance data); regulation (accreditation); quality improvement; innovation and multi-factor studies. There was less emphasis on: hospital governance; leadership and culture; and very little attention paid to demographic context (demand and patient characteristics) and more recent or narrow organisational change strategies. There are some known theories and explanations for hospital performance that were not explicitly canvased by this review (however, were the subject of searches used within the search strategy – see Appendix B), including complexity theory/ies and organisational capabilities. This is because the search results did not obtain *review* articles relating to these topics.

As per the method used to extract and analyse evidence from the included studies (see Appendix B), an assessment of the following was made: the respective volume of evidence within each sub-category; the homogeneity of study aims within sub-categories and the consistency of study findings within sub-categories; the degree of relevance to the hospital context (as opposed to other health related contexts); and research rigour, per included article, and within each sub-category. Additionally, evidence for the influence between each theoretical sub-category and hospital performance (including the respective dimensions of performance) was assessed and reported.

Table 6 Summary of evidence supporting explanations for hospital performance

Explanation & number of reviews	**Characteristics of the evidence**				**Evidence for influence upon hospital performance**					**Overall summary & assessment of the evidence**
	Volume	*Homogeneity & consistency*	*Relevance*	*Rigour (quality)*	*Access*	*Patient Experience*	*Efficiency*	*Safety*	*Performance (not specified)*	
Environment										
Funding model (n=13)	✓✓	✓✓	×	✓	-/+	-/+	-/+	-/+	+	inconclusive
Demography (n=3)	✓	✓✓	✓	✓	N/A	N/A	+	++	N/A	weak positive
Regulation (n=6)	✓✓	✓✓	✓✓	✓	N/A	-/+	-/+	-/+	-/+	inconclusive
Reputation (n=9)	✓✓	✓✓	✓	✓	+	+	+	-/+	-/+	weak positive
Attribute										
Governance (n=4)	✓	✓	✓✓	✓	N/A	N/A	-/+	+	+	weak positive
Leadership (n=5)	✓✓	×	✓✓	✓	N/A	+	N/A	+	+	weak positive
Culture (n=5)	✓✓	✓	✓	✓	N/A	+	-/+	+	+	weak positive
Strategy										
Financial strategy (n=1)	×	N/A	✓✓	×	N/A	N/A	N/A	++	N/A	inconclusive
Quality improvement (n=23)	✓✓	✓	✓	✓	-/+	-/+	-/+	-/+	+	inconclusive
Innovation (n=9)	✓✓	×	×	✓	-/+	+	-/+	+	-/+	inconclusive
Human resources (n=1)	×	N/A	×	✓✓	-/+	+	+	+	N/A	inconclusive
Knowledge (n=1)	×	N/A	×	✓✓	N/A	N/A	N/A	N/A	-/+	inconclusive

Characteristics of the evidence: ✓✓ high, ✓ moderate, × low, N/A not applicable

Evidence for influence upon hospital performance: ++ moderate positive evidence, + weak positive evidence, -/+ no effect / mixed, N/A not applicable

As summarised in Table 6, the overall homogeneity of study aims per explanatory category and sub-category, and the consistency of evidence and conclusions per explanatory category and sub-category, was variable. So too, was the degree of relevance to the hospital setting. The quality of the literature was found to be reasonable (see quality appraisal included within Appendix B), although it is important to note the large range in quality between studies.

3.2.2 Environment and performance

Of the 98 articles included in this study, 58 related to environmental conditions that may impact upon hospital performance. The span of explanations include: funding and incentive schemes including pay for performance (n=13); regulation through external inspection and accreditation mechanisms (n=6); demographic factors such as volume of cases and level of demand for services (n=3); and reputation management in the form of public reporting of performance data (n=9).

Environment studies were largely focused on safety and quality and efficiency performance dimensions, with less emphasis on effectiveness and efficiency, and no consideration for access. The research into hospital accreditation programs was predominantly focused on the hospital setting, and therefore, highly relevant to the aims of this review. There was somewhat less focus on hospitals within the demography and reputation (public reporting of performance data) literatures. The funding model literature took a much broader sweep beyond the hospital organisational unit. The rigour and quality of the review articles included in these studies were generally moderate and authors tended to cite the methodological limitations of the articles that were included within their review articles.

The literature was inconclusive regarding the association between funding model and performance, and regulation (accreditation) schemes and performance. Across all categories of environment explanation, homogeneity of study aims was high, and the review articles arrived at relatively consistent conclusions. Therefore, 'inconclusive' here, refers to the absence of an association (often due to the poor quality of evidence available) or a consistent finding of 'mixed results' as reported by studies included in this review, rather than a high level of disagreement between the studies included within this review. There are indications of a weak positive association between demography and reputation (public reporting) and

performance; however, the quality and relevance of the literature within these explanation categories was moderate.

3.2.3 Organisational attributes and performance

The association between organisational attributes and hospital performance was examined in fourteen of the articles included in this study. Explanations spanned: governance, including boards and clinical involvement in decision-making; leadership including opinion leaders and management; and organisational culture and climate. The organisational capabilities research field may also have been relevant to this review; however, despite including search queries specific to the organisational capabilities perspective, no review articles eligible for inclusion were identified. The literature tended to emphasise safety and quality and general (unspecified) definitions of performance. There was little coverage across effectiveness and efficiency dimensions of performance, and no attention to the accessibility of health services. This may be a result of the database/journal bias towards health rather than management journals.

Governance and leadership research largely focused on the hospital setting, whereas organisational culture research tended to include a broader catchment of health care settings. Moderate to low homogeneity and consistency within the organisational attributes literature was apparent, with indications that leadership research was particularly contested. The methodological quality of included articles was moderate.

The literature indicated a weak positive association between each of the organisational attribute explanations and hospital performance; however, in light of the moderate quality of the literature, indications of inconsistency between the findings of various authors, and the potential risk of publication bias, interpretative caution is advised.

3.2.4 Strategy and performance

Thirty-five of the articles included in this study related to strategy explanations for hospital performance. There was a very broad span of explanations, particularly among the 23 articles on quality improvement strategies. In spite of this, it is worth noting that a high degree of conceptual overlap exists between many of the theories and explanations for performance improvement (e.g. between business process reengineering, process redesign, lean, six sigma, and continuous improvement). A substantial number of innovation explanations were also found, particularly related to innovations in health information technology and eHealth.

Additionally, a small number of studies focusing on financial strategy, human resources, and knowledge management explanations were found. All dimensions of hospital performance were canvassed within the strategy literature, however it is useful to note that strategy explanations seemed to err towards performance improvement more so than performance itself.

The quality improvement literature focused predominantly on hospitals, whereas, topics of innovation, human resource strategies, knowledge management and learning were more far-reaching in their relevance. The financial strategy article was highly relevant to the hospital context. The quality improvement and innovation literatures appeared to be of moderate quality, although the range of quality scores was large. The financial strategy article was of relatively poor quality, and the human resource strategy and knowledge management articles were generally of high quality. The aims and findings of the quality improvement articles included within this review were moderately consistent, whereas authors of the innovation review articles demonstrated less consensus.

Overall, the literature on strategy and hospital performance indicated an inconclusive association between organisational strategies and performance. For the quality improvement literature, this result (combined with a moderate consistency of findings), indicated that the review article authors appeard to agree on the 'mixed' nature of findings for the association between quality improvement strategies and hospital performance. This was in contrast to the literature on innovation, in which the authors of review articles shared less consensus. Therefore, these two literatures were found to be 'inconclusive' for quite separate reasons.

3.2.5 Context and mechanisms

Drawing on a thematic analysis of the conclusion and discussion sections of all included articles, 62 of the 98 studies offered some form of commentary on 'context'. These 62 articles were distributed quite evenly across multi-factor (n=13), environment (n=17), attribute (n=10) and strategy (n=22) categories of explanation. The role of 'context' was commonly raised to retrospectively explain or interpret inconclusive or contested research findings. There were only a few examples in which the concept and role of context was defined, operationalised or tested from the outset of the study (Andersen, Rovik & Ingebrigtsen 2014; Brand et al. 2012; Van Herck et al. 2010).

The thematic analysis identified several realms in which 'context' was used to explain findings, including: context as a facilitator for an outcome (Andersen, Rovik & Ingebrigtsen 2014; Crema & Verbano 2013; Powell, Rushmer & Davies 2009; Taylor et al. 2015); a barrier to an outcome (Black et al. 2011; Conry et al. 2012; Dijkstra et al. 2006; Ng et al. 2013); and a confounding effect within the research process (Baxter et al. 2015; Boaz et al. 2015; Brand et al. 2012; Mannion et al. 2016). Relevant to the aims of this article were observations that context can 'make or break an initiative' (Braithwaite, Travaglia & Corbett 2011) or that, due to differing internal and external contexts, improvement interventions should only ever be used as 'a road map, not a prescribed route' (Walker 2013). Similarly, 'off-the-shelf' methods or systems were criticised for employing 'assumptions… often not easily transferable to different contexts of use' (Black et al. 2011).

Additionally, context was frequently discussed in the 'future research' sections of articles, with many authors calling for more research on context as a subject of research enquiry (Øvretveit 2003; Totten et al. 2012; Vos et al. 2011; Yeager et al. 2014), and for research on hospital performance to be conducted in more context-sensitive ways (Chaudhry et al. 2006; Flodgren et al. 2011b; Hoff et al. 2004; Lemire, Demers-Payette & Jefferson-Falardeau 2013). In particular, there were calls for researchers to recognise that a different set of methodological assumptions is required for research on hospitals, as complex social systems, in contrast to 'biomedicine and trials' (Parmelli et al. 2011). Further, there were calls to go beyond questions of 'what works' (efficacy) and to 'know who it works for and in what situations (effectiveness)', (Totten et al. 2012), which is consistent with the critical realist perspective.

Twenty-five of the 98 articles discussed 'mechanisms' explicitly and in some cases, implicitly. Authors tended to use the word 'mechanism' in ways that were consistent with the critical realist perspective, with a small number of exceptions (Campanella et al. 2016; Markovitz & Ryan 2017; Patterson et al. 2010). Similar to discussions on context, most references to 'mechanisms' pointed to the absence of their treatment within the literature. In turn, authors called for more research attention to the forces and processes at work beneath and between research variables (Black et al. 2011; Boaz et al. 2015; Chambers et al. 2013; Hoff et al. 2004). Only a few authors offered a detailed or explicit account of an underlying mechanism that could be (or had been) examined explicitly (Leggat et al. 2015; Lemire, Demers-Payette & Jefferson-Falardeau 2013; Sheaff et al. 2003). An emphasis on

conducting longitudinal, qualitative and processual (process-oriented) research was a common recommendation, echoing Pettigrew's long-standing recommendations (1985) as noted in Chapter 2. This approach might offer further insights into the underlying mechanisms for performance.

3.2.6 Interactions between factors

The last stage of the thematic analysis sought to map the relationship between various explanations for hospital performance, and to describe the state of knowledge about the interaction and cumulative effects of various factors. This involved combining the discussion and conclusion sections of articles (each with a diverse set of aims, foci, and assumptions) and this heterogeneity is a key limitation of this stage of the review. With this in mind, the attempt here was not to create a conceptual or explanatory model for application to practice; rather to describe, map and direct the field for future research.

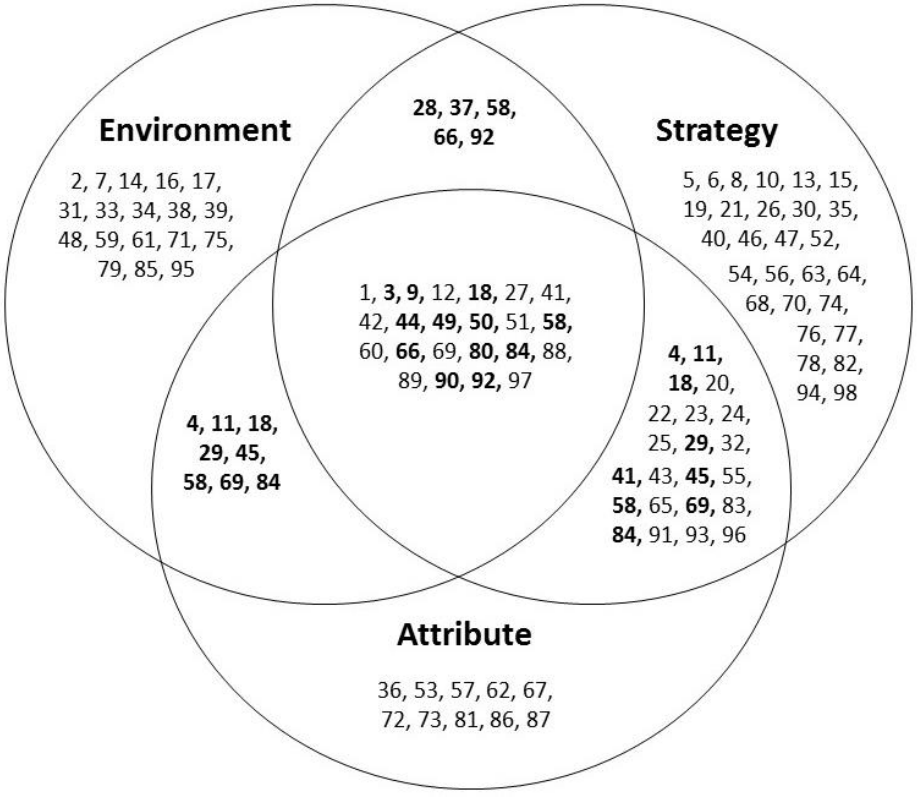

Figure 4 Venn diagram describing the scope of what is known from the literature on the interactions between environment, attribute and strategic factors and their influence on hospital performance (n=98)

Note: Numbers (e.g. '12') listed in the diagram correspond with article ID (see Appendix B). Articles 4, 11, 18, 29, 41, 45, 58, 66, 69, 84 and 92 are included within multiple categories, due to their use across multiple categories within the thematic analysis. Articles indicated in bold were included in the final thematic analysis (n=20).

Figure 4 shows each of the 98 included articles re-allocated across seven categories for the analysis of interaction between factors. From this data, there appears to be a particular focus on 'multi-factor' research, and also, the interaction between attribute and strategic factors. There is less attention paid to the interaction between environmental factors and organisational attributes, and environmental factors and strategy. Overall, a little less than 50% of included articles noted interactions, and only 20 articles include a sufficiently detailed discussion to warrant inclusion in the thematic analysis. It is also interesting to note that grey literature articles were over-represented in the multi-factor 'environment-attribute-strategy' category, with four of the ten grey literature articles included in this study, as pictured in the centre of the Venn diagram Figure 4.

Five themes emerged and were refined from the results of the thematic analysis. Figure 5 provides a diagrammatic summary of the findings, as collated from the results of the thematic analysis method described in Section 3.1.6. It is worthwhile noting that Figure 5 acts as a revised version of the overarching conceptual framework adopted for this study (Figure 1 on page 19). A link to hospital performance is not explicitly included in the diagram, as the focus of the analysis was the interactions between categories of explanation. It is worth noting that little evidence was found to support associations between factor-interactions and performance.

In general terms, a prominent observation within the literature was that there is no simple answer, 'silver bullet', or 'one correct way' to bring about hospital performance improvement. Rather, the factors that surround, embed and operate within a hospital, appear to be interconnected, interdependent and mutually reinforcing, and collectively give rise to performance outcomes that are specific to local circumstances and cumulative actions (Powell, Rushmer & Davies 2009; Scott et al. 2003; Sheaff et al. 2003).

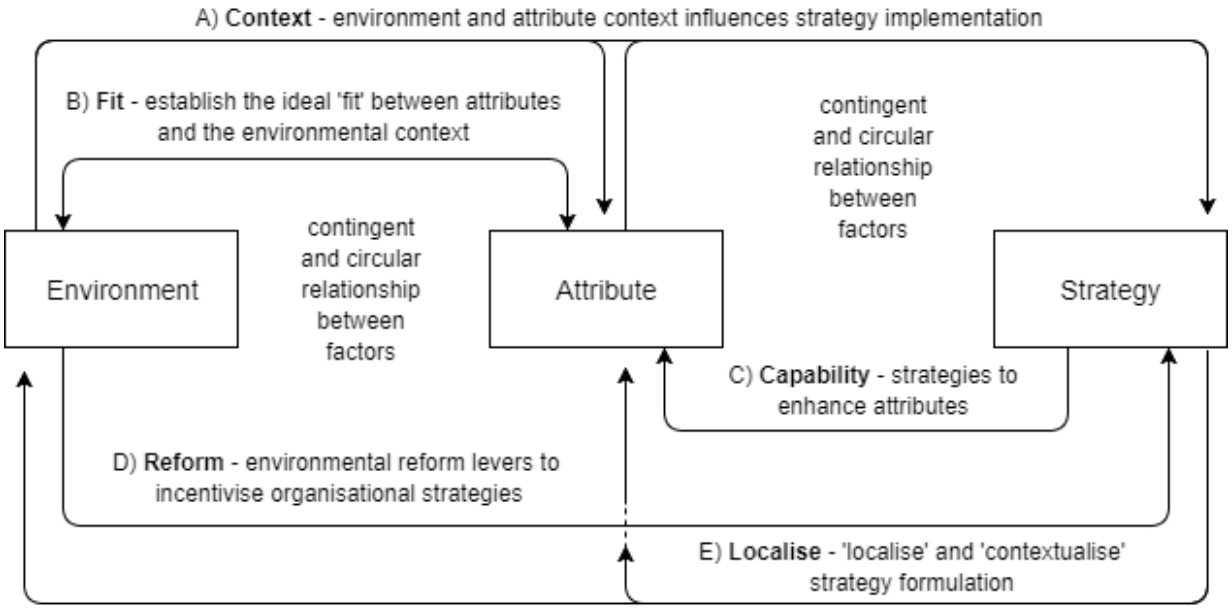

Figure 5 Interactions between hospital environment, attribute and strategy factors, as currently discussed within the literature

3.2.6.1 Theme 1. Context

The first theme, 'context', relates to the observation that the conditions and contexts operating in the hospital environment and within the hospital (organisational attributes) appear to influence the implementation of strategic interventions. For example, the presence or absence of the following were described as influential to the success of performance-improvement strategies: support from senior executives or clinicians; information technology resources; performance monitoring and management mechanism; high quality and relevant data; an 'empowered' organisational culture and the existing stage of group and board dynamics (Andersen, Rovik & Ingebrigtsen 2014; Boaz et al. 2015; Chambers et al. 2013; Kondo et al. 2016; Mazzocato et al. 2010; Taylor et al. 2015). Another example is the degree of administrative centralisation, which was raised as an important factor for success. In particular, authors suggest that highly centralised hospital structures have: poor implications for the transparency of processes; a poor capacity for organisational learning; and poor cohesion of organisational culture(s), which cumulatively make strategy implementation more difficult (Sheaff et al. 2003).

Other authors observed the ways in which environmental and attribute factors combined to impact upon strategy implementation. An example included the interactions between political leadership (environment) and organisational leadership (attribute) and

their combined impact upon both sector-wide reform and hospital-level change programs (Baxter et al. 2015). Unexpected results were also reported, including the presence of various organisational capabilities (prior experience with quality improvement, staffing levels, IT capability etc.) having no impact upon the local implementation of a pay for performance reform program, as reported within one study (Markovitz & Ryan 2017).

3.2.6.2 Theme 2. Fit

The second theme, 'fit', refers to the establishment of an ideal fit between organisational attributes and characteristics of the environmental context. For example, this might encompass leadership style being altered to match a complex environmental condition (Baxter et al. 2015); preconditions such as information technology or performance management systems aligned to goals within the broader environmental context prior to the introduction of overarching reform measures (Eijkenaar et al. 2013); or the need to tailor the organisational structure to suit the demographic or patient demand profile that exists in the local environment (Jack & Powers 2009).

Best 'fit' may also go beyond the environment-attribute relationship, with important implications for strategy implementation also. Contingency theory (as introduced in Chapter 2) suggests that hierarchical organisational structures are more suited to stable environments, whereas less hierarchical organisational forms (e.g. 'network' or 'matrix' structures) are more effective in rapidly changing or turbulent environments. However, based upon the analysis here, it is suggested that strategy implementation may also be influenced by decisions made at higher levels. For example, hierarchical structures tend to have more formalised communication channels, which might support efficient hospital-wide communication about an intervention or improvement program, but may also have a negative effect on hospital culture, staff empowerment and the capacity to embed new innovations (Sheaff et al. 2003). In contrast, less formalised organisational structures have been observed to increase staff empowerment and engagement with quality improvement activities; however, there is also some evidence to suggest that decentralisation may make strategy implementation more difficult (Sheaff et al. 2003). Similar observations about the 'fit' between leadership style and the environmental context have been made, and the desirable or undesirable implications that this may have upon staff motivation and their ability to create change (Sheaff et al. 2003).

3.2.6.3 Theme 3. Capability

The third theme, 'capability', describes actions taken to improve and enhance certain attributes operating within the hospital (e.g. organisational culture, human resource practices, quality and access to resources etc.). This might involve the articulation of a collective vision for change, strengthening of communication channels, team-building exercises, or indications of commitment to change made by senior management in order to improve the organisational climate and culture before embarking upon an intervention (Andersen, Rovik & Ingebrigtsen 2014; Taylor et al. 2015). Or it may involve a learning exercise to better understand the possible barriers and facilitators for change, and to take actions to prepare the local context for improvement (Dijkstra et al. 2006; Mazzocato et al. 2010).

The strengthening of various organisational 'capabilities' was discussed by a number of authors, encompassing: training to enhance 'technical capability' before a technical intervention (Andersen, Rovik & Ingebrigtsen 2014); fostering a more generalised 'innovation capability' (Länsisalmi et al. 2006) or 'routinised learning capability' (Mazzocato et al. 2010); or other workforce development interventions (Taylor et al. 2015). The (perhaps unstated) theory, is that by enhancing organisational attributes prior to the implementation of an improvement intervention, the intervention will be more likely to take root and create sustained performance improvement. Again, there is little in the way of empirical evidence (reviewed here) to support this causal chain. There is, however, some evidence both for and against the influence of interventions to enhance capabilities (Dijkstra et al. 2006; Taylor et al. 2015; Walker 2013), but less has been done to examine the relationship with hospital performance.

3.2.6.4 Theme 4. Reform

The fourth theme, 'reform', describes the use of reform policy, programs or other 'levers' imposed by government and external regulators, and the function of these 'levers' as they interact with the operational and strategic context of the hospital. It was suggested that environmental 'levers' functioned as: the impetus or catalyst for change; essential support for local change; or inadvertently, acting as a barrier to change, depending upon the characteristics of the reform program. In other words, decisions made 'upstream' to develop reform packages appear to impact 'downstream' activities and results (Fung et al. 2008).

Examples included the application of universal information technology solutions at a national level, and the mandatory public reporting of hospital or health system performance data. To bring about the successful translation of reform packages to a local organisational context, the literature observed that incentives of 'adequate' value, targeted at low levels of analysis (at a ward or unit level, or even at an individual level) and with an appropriate scope and level of comprehensiveness, were important factors for success (Eagar et al. 2013). Issues surrounding 'perverse' incentives were also discussed within the literature.

3.2.6.5 Theme 5. Localise

The fifth theme, 'localise', is strongly aligned with the fourth theme and describes the need to localise and contextualise performance improvement strategies during strategy formulation and planning to ensure that strategies are suitable for the local organisational environment. This involves striking a balance between centralised or reform-driven directives and local autonomy. The tailoring of accreditation standards to be relevant and specific to a local organisation is a prime example (Ng et al. 2013). Similarly, the subtle yet important difference between *informing* or *involving* stakeholders in the context of reform and improvement was highlighted in the literature (Van Herck et al. 2010). Again, this raises issues of local autonomy and agency in shaping the process to suit the peculiarities and needs of a given hospital context (Rumbold et al. 2014). Several authors criticised the 'one size fits all' approach, offering observations about the benefits of policy and strategy 'localisation' (Ng et al. 2013; Rumbold et al. 2014).

3.2.7 Contingent and circular relationship between factors

Another central point of discussion arising as part of the thematic analysis (across all factor categories and domains) was the contingent and circular relationships between factors. Some authors highlighted the difficulty in disentangling individual effects of factors, and the influence of multiple factors upon an outcome (Sheaff et al. 2003). Other, more positivist authors tended to consider factors that were outside the direct focus of the study as 'confounders' that ought to be 'controlled' (where possible) or 'adjusted for' during the analysis of results (Witter et al. 2012). Other, more interpretivist authors, were more sceptical of traditional 'cause and effect' type assumptions and approaches to research; instead, highlighting the conditional nature of attributions (Andersen, Rovik & Ingebrigtsen

2014) and the need to recognise how various different mechanisms 'overlap and rarely act in isolation' (Boaz et al. 2015) to produce performance results, unique to each hospital context.

The context-dependency of mechanisms and resulting difficulty in transferring results from one context to another was featured in the discussion within one grey literature review:

> *To find evidence for a 'relationship' between organisational structures and policy outcomes is one thing: to assume that changes in organisational structure therefore provide a trusty mechanism for producing such outcomes is quite another. The history of successive NHS reorganisations is a caution on that point. (Sheaff et al. 2003, p. 144)*

The literature offered very little reflection on how various factors (as triggered by mechanisms operating with a hospital), might be prioritised or sequenced in order to bring about a particular performance outcome.

3.2.8 Recommendations

Given that the thematic analysis drew on the discussion and conclusion sections of included articles, a substantial portion of data canvassed 'recommendations for future research'. Although this is not a 'theme' *per se*, collated findings are presented here.

Many studies noted the paucity of research on context, mechanisms and the interactions of factors operating within the hospital environment. The need for further scholarly focus on priority factors and the sequencing of strategies was highlighted, and there were calls for more end-user input in both the research design and process. There were also calls for more longitudinal and qualitative study designs, and the development of multi-theory approaches and methodologies that were able to span research phenomenon occurring in complex adaptive systems. In contrast, other authors called for future researchers to be more rigorous in their study of hospital performance, in particular, taking care to isolate independent variables from contextual confounders and to adequately adjust for confounding variables during data analysis.

3.3 DISCUSSION FOLLOWING THE REVIEW

Underpinning this review of reviews were four interconnected research questions, with an overarching aim to 'scope out' the spectrum of explanations for hospital performance.

3.3.1 Evidence for explanations

The first question guiding this review asked: what credible evidence exists for each of the explanations (theories, models, frameworks) related to hospital performance and performance improvement? The findings of this review suggested that there is little available evidence regarding the relationship/s between hospital performance and each of the sixteen categories of explanation. That is, the literature was largely inconclusive or suggestive of weak positive effects. In some cases, 'inconclusive' indicated an insufficient volume of evidence (or quality of evidence) to form a conclusion. In other cases, 'inconclusive' related to mixed or highly contested findings across the literature. As observed by previous scholars, 'absence of evidence' does not necessarily equate with 'evidence of absence' (Scott et al. 2003). However, conversely, consistent empirical uncertainty about the determinants of performance and drivers for improvement may shed light on the complexity of the research domain. Further, it may also raise questions as to the potential inadequacy of research methods that have been used, to date, to study this complex case environment. It is useful to note the variability in quality of the included papers.

3.3.2 Interactions between explanations

The second research question asked: how has the literature discussed the relationship between various explanations for hospital performance, including multi-factor explanations and the interactive or cumulative effect of multiple explanations operating together? Only a small number of articles included a sufficient discussion on factor and explanation interactions to warrant their inclusion in this part of the analysis. It is also interesting to note the over-representation of grey literature within this number, perhaps pointing to an unmet need within policy and practice settings for more investigation into the interactions between various explanatory factors and hospital performance.

The literature on interactions pointed to a particular focus on 'multi-factor' research and the interaction between organisational attributes and strategic factors. Less attention was paid to the potential relationship between environmental factors and organisational attributes, and environmental factors and strategy. The five themes that emerged from

thematic analysis essentially represent the cumulative (and again, often retrospective) sense-making observations of multiple authors who have attempted to explain the lack of empirical evidence for the respective theory that they have investigated. In other words, the resulting themes are hypothetical and analytic rather than empirical, and, therefore might better represent areas for future research rather than 'tried and true' principles for practice.

On the other hand, it is interesting to note the areas of overlap between these somewhat ad-hoc and mostly implicit reflections and existing theories evident within the literature as presented in Chapter 2. For instance, the first theme, 'context', relates closely to the existing discussions on organisational factors in Section 2.3.4.1 of Chapter 2. The second theme, 'fit' resembles contingency theory, as discussed under Section 2.3.1.2. Contingency theory *was* the explicit focus of one included review (Walker 2013); however, all other references to the 'fit' between attribute and environment factors found within the data were stated implicitly. The third theme, 'capability' corresponds closely to the resource-based view (RBV), as described under Section 2.3.2.5 within Chapter 2. The fourth theme, 'reform', fits within the broader health policy and reform literatures, and also shares several parallels with the public policy discipline. The fifth theme, 'localise', describes the need to localise and contextualise performance improvement strategies during strategy formulation and planning to ensure that strategies are suitable for the local hospital environment. There is comparatively little in the existing literature about the process of modifying or tailoring strategies to suit particular settings; however, a small volume of literature on 'theory-borrowing' does exist in the management literature (as touched on in Chapter 9 and treated in further depth in Appendix L) and the policy transfer literature in the public policy discipline is also useful here.

The alignment between many of the implicit explanations suggested by article authors to explain inconclusive findings and a number of prominent existing theories (as described in Chapter 2) indicates the existence of a number of scholarly blind-spots. As suggested by several authors (Davidoff et al. 2015; Grol et al. 2007) and outlined in Section 2.1.1 of this thesis, there seems to be a distinct absence of theoretical rigour within health services research. This includes both the tendency to use informal theory rather than explicit theoretical models (capable of being examined, operationalised or tested within other settings), and the use of concepts that may be similar to formal theories that are already well-defined, developed and researched within other disciplines. As such, theoretical domains,

such as the organisational capabilities literature (of the resource-based view) have enjoyed little in the way of scholarly attention within public hospital service settings.

3.3.3 Context and mechanisms

The third research question asked: how have context-mechanism-outcome relationships been discussed within the existing literature? The literature was largely characterised by a retrospective attempt to explain inconclusive or contested research findings. Context was often invoked as a 'catch-all' to explain the seemingly unexplainable. This is consistent with Paul Bate's (2014) essay, 'Context is Everything', in which he observes that the notion of context is slippery, often poorly defined, and frequently employed to describe (hypothetical) influences operating at a level of analysis other than the phenomenon being examined. There are, of course, exceptions included within this review (Braithwaite, Marks & Taylor 2014; Chambers et al. 2013). The discussion on mechanisms was also largely reflective and ad-hoc rather than representing a central component of the study design, and authors frequently called for more context-sensitive research, and, in particular, further research on the relationship between context and mechanisms.

3.3.4 Key implications for the current study

The final question asked: based on the findings of this literature review, what guidance can be offered to the current study? First, in order to address the fragmentation of the field, it is recommended that reductionist research assumptions associated with the positivist tradition be (at least temporarily) replaced with a more overarching systems perspective. This systems view might be employed to: help re-focus empirical efforts upon the organisational level of analysis; bring various disciplines together to share knowledge; reintegrate theoretical explanations for hospital performance; and to expand the scope of the field. Consistent with this, positivist research methodologies and methods (e.g. trials, experiments and many survey-based study approaches) may be better employed after the various 'puzzle pieces' that link disparate theories and empirical knowledge have been integrated and examined with more clarity.

In place of reductionist assumptions and approaches, it is recommended that alternatives be explored, including interpretivist or critical realist perspectives and methods (e.g. grounded theory, phenomenology, thematic analysis, action research). The critical realist perspective is particularly suitable given its focus upon context and mechanisms, its

capacity to consider multiple theories or explanations simultaneously (theoretical pluralism), and for its particular suitability for case study research (Easton 2010). A key drawback, however, is that critical realist methods are underdeveloped (Ackroyd & Karlsson 2014) (with the exception of realist evaluation which is often targeted at a project or program level within the organisational boundary), and therefore some work may be required to adapt and construct a suitable approach to study at the organisational level of analysis.

The findings from this review also point towards various avenues for further research. A close examination of Figure 4 indicates that further investigation into the interdependencies between different levels of context (e.g. both environmental and organisational) and strategy (e.g. strategy formulation and strategy implementation) may be warranted. Additionally, Figure 5 may also point towards several knowledge gaps. For instance, little of note was found in the literature on the capacity for strategy factors to influence environmental factors. One example of a possible interaction between these two categories, which was *not* raised by article authors included in this review, is the potential for management 'fads' (e.g. Lean Thinking) to be implemented within a single organisation, which then may influence policy at a national level by creating a 'reform lever' for spread to other hospitals.

Although the results of this scoping review offer no evidence or recommendations that are directly applicable to administrators or policy-makers concerned with hospital settings, this review does highlight the current dearth of relevant research suitable for decision-makers and makes a strong call for research to be conducted in ways that better meet the needs of end-users.

3.3.5 Limitations of the review

The review was limited in several respects. First, the review targeted review articles only, inevitably surveying the literature rather than delving deeply into the theoretical or empirical knowledge-base. Further, the review was primarily conducted by a single reviewer, with assistance received for the moderation of quality appraisals only. Largely for this reason, the review itself was not exhaustive, and it is possible that important review articles were missed. The selection of research databases (i.e. Scopus, PubMed, Cochrane, Google Scholar) and the use of the 'relevance protocol' (see Appendix B) that was developed for efficient search and selection, may also have increased the risk of omitted articles. Additionally, the focus of this review was on the organisational (hospital) level of analysis and this focus may have

overlooked other important perspectives, including the individual level of analysis and associated explanations around individual motivation, agency and readiness for change. It is also worth noting that the aims of the included articles did not necessarily match the aims of this review.

With regards to the included studies, there are several notable limitations. First, the studies were likely to be influenced by positive publication bias. Second, hospital data are often mixed with other health and public sector settings within included studies, and it was often difficult to differentiate between these settings, particularly so for the thematic analysis of discussion and conclusion sections of included articles. The differentiation between public and private hospital contexts, often operating under very different conditions, offers a similar dilemma. There was also a predominant focus on United States and United Kingdom empirical settings, and this raises questions as to the coherence and applicability of findings to other settings. Included reviews were subject to a quality appraisal, however, as this review was not attempting to draw conclusions about causal evidence, studies of variable quality were included in the analysis. Despite the benefits for scoping and mapping the literature, it is likely that the inclusion of poorer quality articles may have influenced the findings of the review.

3.4 CONCLUSION

The purpose of this chapter was to offer an assessment of the volume and quality of evidence that exists for the theories and explanations relevant to the topic of hospital performance and performance improvement. The review indicated that despite a relatively large volume of literature on the topic of hospital performance and a correspondingly large number of explanations for performance and performance improvement, there appears to be little (weak or inconclusive) evidence in support of existing explanations for hospital performance. Authors' common explanations for this lack of evidence relied heavily on the confounding effects of 'context', often noting the high level of complexity within the hospital environment.

Very little research had sought to empirically examine the interactions between the many factors operating within this complex context. However, some reviews did form a number of concluding remarks about possible interactions and mechanisms at work, although these are yet to be adequately linked to the depth of existing theoretical knowledge (including knowledge or theory developed in other disciplines). The common threads and themes

drawn from these concluding remarks may offer new avenues for research. In particular, the findings of this review suggest that a less reductionist and a more trans-disciplinary approach to research may be required in order to produce knowledge that is of most use to hospital decision-makers and health policymakers. This might include research that regards hospitals as entire and intact social systems operating within unique and complex sets of contextual conditions, rather than the continued pursuit of more reductionist single-factor or single-theory research, which is not well-equipped to consider the many facets of context.

Drawing on these conclusions, Chapter 4 describes the aims, methodological approach and research design developed for empirical research herein.

4 METHODOLOGY, RESEARCH STRATEGY AND DESIGN

> *… the whole of science would be pointless unless there was a possibility of a distinction between essence and appearance - unless there was the possibility that what we thought about natural reality or any other form of reality was wrong…*
>
> *It may be necessary for morality to correct bad science, but it corrects it in the name of a higher norm, true freedom. And that is guided by a highest norm of all – fundamental truth.*
>
> — Roy Bhaskar (1999)

4.1 INTRODUCTION

Chapters 2 and 3 concluded that scholarly knowledge on the topic of hospital performance is somewhat siloed and splintered, with a poor understanding of the interactions and interdependencies between various factors, theories and explanations and how they may come together to produce (or shed light on) a particular outcome. In-depth case study is a suitable approach to redress these scholarly deficiencies.

Case studies are well-suited to research areas that are less well-developed and 'where examination of the context and the dynamics of a situation are important' (Dobson 1999, p. 260). Further, case studies are capable of answering broader 'how' and 'why' questions which must be addressed in order to begin the synthetic process of whole-of-organisation theorising (Eisenhardt 1989). As suggested by critical realist researcher, Easton (2010, p. 119):

> *Case research allows the researcher the opportunity to tease out and disentangle a complex set of factors and relationships, albeit in one or a small number of instances… The flexibility that case research allows in this respect is one of its major advantages and one that is not shared by, for example, survey based methods. Case research can therefore be defined as a research method that involves investigating one or a small number of social entities or situations about which data are collected using multiple sources of data and developing a holistic description through an iterative research process.*

This chapter is structured in three parts. The first part outlines the aims and goals of the empirical research and details the research questions that were used as a guide to the study. The second part considers the sorts of assumptions that might influence the design and process of research. Methodology (as distinct from method (Dobson 1999; Hyett, Kenny & Dickson-Swift 2014) is discussed, and an introduction to the critical realist perspective and

approach is provided. The final part describes the research strategy devised for empirical research, including the synthesis and development of a novel critical realist method.

4.2 STUDY AIMS AND QUESTIONS FOR EMPIRICAL RESEARCH

4.2.1 Research aim

This study aims to explain how and why various environmental, organisational and strategic factors were able to influence the performance of a high performing hospital. Little is known from the literature regarding the conditions and mechanisms involved in hospital and health service performance improvement, especially the ways in which these conditions and mechanisms may interact, and this study seeks to address this paucity of understanding and evidence.

4.2.2 Research goal

Whilst recognising the limits of empirical generalisability for case study research, the goal of this study is to contribute to the development and refinement of robust theory. Ultimately, this study aims to contribute to the body of knowledge about how aspects of organisational context and strategic capability can be harnessed, modified or developed, to increase the likelihood of successful performance improvement interventions within the public hospital context.

4.2.3 Research questions

Addressing the shortfalls evident within the academic literature, a two-part research question was developed for an in-depth case study of Alfred Health, a large tertiary teaching hospital network located in Melbourne, Australia. These research questions are consistent with the critical realist approach to case study (Danermark, Ekström & Karlsson 2019; Wynn & Williams 2012, p. 800). Critical realist research questions typically take the form: 'What caused the events associated with the phenomenon to occur?' (Easton 2010, p. 123). As observed by Wynn and Williams (p. 804): '..causal research questions establish a focus on the search for mechanisms in a particular context.' The two research questions developed for this study are as follows:

1. What were the key contextual conditions and organisational factors and that gave rise to Alfred Health's trajectory of high performance and sustained performance improvement?
2. How and why did these key contextual conditions and organisational factors come together to produce this result?

4.3 METHODOLOGY

4.3.1 Research assumptions

Making explicit the philosophical and methodological assumptions that underpin a research design is of fundamental importance to the integrity of research findings (Marsh, Ercan & Furlong 2018). Many hidden assumptions enter research designs as a result of researchers core beliefs about the nature of the world and existence (ontology), the nature of knowledge and what is knowable about the world (epistemology) and the sets of values that underpin the search to know about reality (axiology) (Bahm 1993; Turner & Risjord 2007). A scholar's position in relation to these questions will influence the chosen research design, even if they have not been considered by researchers overtly. There are a number of patterns in the ways in which researchers tend to approach ontological and epistemological questions, characterised as opposing positions – often as a binary between positivism and interpretivism (Marsh, Ercan & Furlong 2018; Rawnsley 1998).

Where positivism describes a fundamental belief in independent knowable truths (i.e. facts waiting to be discovered through careful measurement), interpretivism is more cautious about the capacity to reveal one correct 'truth' (i.e. measuring the same event from various perspectives may reveal several valid versions of reality) (Rawnsley 1998). Positivist research designs are often associated with quantitative experimental research from the natural sciences, including laboratory research and randomised controlled trials. These research designs allow specific variables to be isolated, in order to measure and test, with statistical confidence, the relationship and effect of one or more variables upon another. In contrast, interpretivist research designs are more often associated with the humanities and qualitative research designs, using text, dialogue or imagery to probe and make sense of various experiences within social structures, more so than physical ones. Methodologies and methods are frequently borrowed or mixed between the two ontological and epistemological

positions, although not without raising questions about the risks associated with incompatible assumptions or instruments (Falconer & Mackay 1999).

The research design employed for the current empirical study is informed by the 'critical realist' stance: - a 'contextualist' ontological and epistemological position, which is adopted here as a balanced and practical middle-ground in response to the perceived and contrasting weaknesses of positivism and interpretivism (Archer 1998) . The rationale for adopting critical realism goes beyond the author's personal affinity with this pragmatic middle-ground (which is an important factor in itself) but is also informed by the particular suitability of the approach for case study research that is sensitive to context and process for the investigation of change (Fletcher 2017, p. 8).

4.3.2 Critical realism

Critical realism is a comparatively new viewpoint, originally put forward by Roy Bhaskar in the mid to late-1970's (Bhaskar 1978, 1979) in response to a number of long-standing dilemmas within the philosophy of science. Specific disciplines and researchers have also refined and tailored the approach – the most prominent within health services research being Pawson and Tilley's (1997) 'realist evaluation' approach (Greenhalgh et al. 2009). The critical realist stance criticises positivism for limiting conceptions of 'reality' to what can be empirically known (observed and measured), and in contrast, problematises the extreme interpretivist commitment to reality as entirely constructed by human knowledge and discourse (Archer 1998). Critical realism contends that a 'real' social world *does* exist and that this world is capable of being studied, accessed and understood; however, it also maintains that some knowledge more accurately reflects reality than other knowledge (Fleetwood 2014; Fletcher 2017). In particular, critical realists are interested in knowledge or theory that can help to form clear, concise, empirically-supported (and useful) causal explanations of social phenomena (Wynn & Williams 2012).

The key tenets of critical realist ontology and epistemology are briefly summarised herein. Common research terminology including 'causality', 'mechanism', and 'generalisability' have quite specific meanings within the critical realist view and these meanings differ from positivist and interpretivist definitions. This highlights the importance of exposing the underlying assumptions of research practice. As mentioned in Chapter 2,

Appendix A provides a glossary of key terms, with a particular focus upon critical realist concepts.

4.3.2.1 Critical realist ontology

The critical realist ontology is composed of four premises: i) an independent reality; ii) stratified ontology; iii) emergence; and iv) an open systems perspective (Wynn & Williams 2012).

'Independent reality' describes the notion that the world exists 'out there', independent of our ability to perceive or gather knowledge of the world (Wynn & Williams 2012). Two dimensions of reality therefore exist: an 'intransitive dimension' composed of reality itself, and a 'transitive dimension', in which our knowledge of reality (arrived at through reason or scientific research) is subject to continual revision and reinterpretation (Bhaskar 1978, pp. 21-23; Hartwig 2015, pp. 400-401). The 'thought-objects' (theories, ideas, beliefs) of the transitive reality are considered ontologically real yet distinct from the entities to which those thought-objects relate. For instance, an apple is a 'real' entity, and so too, is our perceptual and conceptual understanding of 'apple', but these two versions of reality are distinct and are capable of operating independently of one another.

'Stratified ontology' provides structure to the concept of independent reality, assigning three nested levels to the real world: the 'real', the 'actual' and the 'empirical' (Bhaskar 1978, pp. 12-13, 56-57; Fleetwood 2014). The 'real' encompasses all, including the entities and structures of reality, and the causal powers inherent within them as they exist independently. The 'actual' comprise the events that occur when these entities and structures are enacted by causal powers. Actual events may or may not be observed or perceived by humans. The 'empirical' consists of those events that are experienced (or, are able to be experienced) and observed by human perception or measurement. The 'empirical' resides as a subset of reality within the actual, which, in turn, resides as a subset within the real (Fleetwood 2014) (see Figure 6, below).

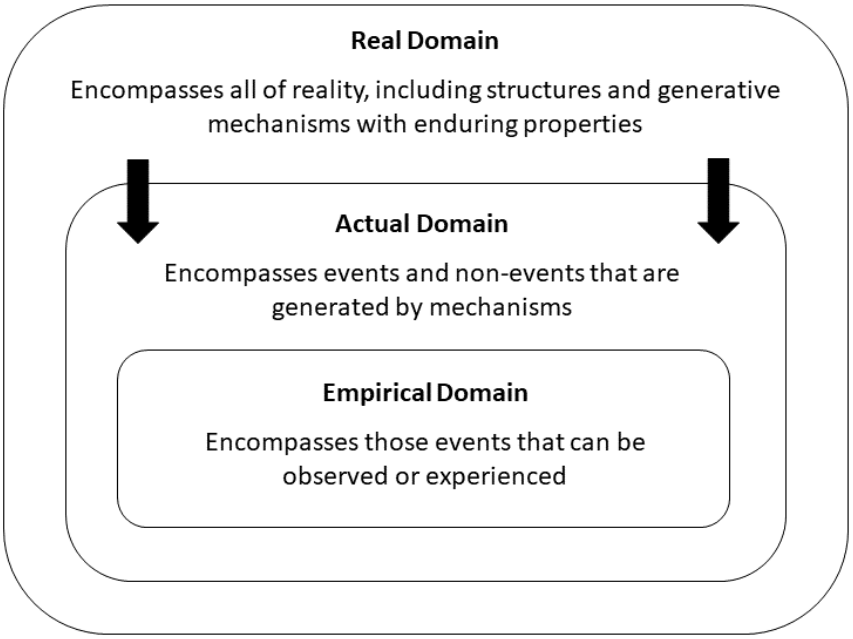

Figure 6 A diagrammatic representation of the critical realist notion of stratified ontology

Within the stratified layers of reality reside four key features: 'structures', 'mechanisms', 'events' and 'experiences' (Fleetwood 2014). Structures are groups of related objects and practices that comprise the entities that researchers wish to study within a given context. As per the complexity theory lens, the notion of: 'the whole is more than the sum of the parts' (Capra & Luisi 2014, p. 10) is highly relevant here. Critical realism suggests that structures possess novel properties, characteristics and tendencies distinct to themselves, that cannot be reduced to or explained solely in reference to their component entities. This notion is known as 'emergence' – a key premise of the critical realist ontology (Bhaskar 1978, p. 113) as well as the complexity lens.

'Mechanisms' are 'nothing other than the ways of acting of things' (Bhaskar 1978, p. 14) either manifesting as 'causal powers' or 'tendencies' (Wynn & Williams 2012). They are inherent to the physical and social structures to which they belong, acting to enable or limit occurrences within a given context (Wynn & Williams 2012). Causal powers describe the potential for structures to manifest certain actions or occurrences as opposed to others, contingent upon the nature of a structure's component entities (Bhaskar 1978, pp. 49-50). Entities themselves are conceptualised as possessing a number of powers which may (or may not) be realised within a particular context. Tendencies, on the other hand, describe characteristic (although not necessarily expected) actions that belong to particular classes of

things (Bhaskar 1978, pp. 14-16). To illustrate: 'All men… possess the power to steal; kleptomaniacs possess the tendency to do so' (Bhaskar 1978, p. 230).

'Events' refer to occurrences or actions that manifest as a result of one or more mechanisms (Bhaskar 1978, p. 13). It is important to note that critical realism regards events as ontologically separate from the mechanisms that give rise to them (Bhaskar 1978, pp. 31-32). This is important for an understanding of the effects of events. For instance, despite the functioning of a mechanism, no effect or change may take place, due to the counteracting powers of several mechanisms acting simultaneously. Similarly, the effect of one event may be altered due to the effects of another, changing our capacity to perceive that event, or the qualities of our perception (e.g. the direction or magnitude of an effect). This is particularly so for complex events, which are more difficult to perceive due to the combined effects of numerous mechanisms operating within potentially numerous sub-structures. 'Experiences' describe those events that humans are capable of directly or indirectly observing (Bhaskar 1978, p. 13). Given the ontological separation between experiences and events (as with each level within the stratified ontology), experiences may be correctly or incorrectly attributed to events.

Last, the critical realist ontology assumes that reality is an 'open system' (Bhaskar 1978, p. 14). In contrast with 'closed systems' that are fabricated by the natural sciences for laboratory experiments; in open systems, reality is constantly subject to contextual conditions, and thus, outside of direct control. As such, events are influenced by both the causal powers and mechanisms inherent within structural entities, as well as the continually changing and evolving set of contextual conditions and properties within and beyond the structure under study. This permeability of structures and the evolving nature of contextual influence means that it is not possible to assume that the mechanisms enacted within a system and a given context will produce identical (or similar) events if enacted a second time (Wynn & Williams 2012).

4.3.2.2 Critical realist epistemology

The critical realist epistemology possesses five key tenets: i) mediated knowledge, ii) explanation rather than prediction; iii) explanation via mechanisms; iv) unobservability of mechanisms; and v) multiple possible explanations (Wynn & Williams 2012). These

epistemological principles ultimately lead to and support the critical realist practice of 'abduction' and 'retroduction' as described at the end of this section.

'Mediated knowledge' draws on the ontological concept of intransitive and transitive realities (introduced above) to propose that knowledge of the intransitive ('the real') which is formed by us in the transitive dimension ('the experienced'), is always mediated by the social structures that surround us, for instance, research disciplinary norms (Wynn & Williams 2012). Thus, knowledge is not created *ex nihilo* (out of nothing) but is influenced by our social interactions and beliefs, alongside our sensory, conceptual and value-laden interpretations of reality.

The notion of 'explanation' within critical realism has many parts. First, the goal of critical realist research is to *explain* the mechanisms that bring about a particular event within a context, and in doing so, reveal the causes for a particular phenomenon (Bhaskar 1979, p. 165; Fleetwood 2014). This is in contrast to the positivist position, which predominantly seeks to *predict* the outcomes of future events; and is similarly distinct from the interpretivist position, which seeks to *understand* the socio-cultural meanings that reside within events (Fleetwood 2014). The identification of 'demi-regularities' – 'a partial event regularity indicating the occasional realization of a causal mechanism, with relatively enduring tendencies, in a bounded region of time and space' (Wynn & Williams 2012, p. 794) provides fertile ground for empirical explanation (Fletcher 2017).

The observation of common phenomena occurring in similar contextual conditions allows critical realist researchers to examine the existence of causal mechanisms as they operate within unique settings (Wynn & Williams 2012). Conversely, an examination of contrasting events or outcomes, in settings in which structural and contextual conditions might lead us to expect similar mechanisms to operate and manifest, would also be of interest to a critical realist researcher (Wynn & Williams 2012). Both forms of 'demi-regularity' provide opportunities to deepen knowledge of causality and the manifestation of mechanisms within structures, and thus generate explanations that may more closely resemble 'the real'.

Critical realist explanation occurs through the identification of existing and/or enacted mechanisms emerging from the components of physical or social structures within the context of 'enabling', 'stimulus' or 'releasing' conditions (Wynn & Williams 2012). Simply put, events are explained by examining the combination and culmination of action, structure and

context. Ideally, a theory might also draw inferences about the inter-relationships between structures and between mechanisms, and the ways in which they functioned in order to generate an event or outcome. The task of critical realist explanation is challenging, due to the 'unobservability of mechanisms' within empirical contexts. That is, our understanding of a mechanism is most often (within social research) reliant upon our ability to observe its effects ('causal criteria') rather than our ability to observe it directly ('perceptual criteria') (Bhaskar 1978, pp. 179-180). Knowledge of reality, therefore, is predominantly brought about by the process of scientific inference, involving intellectual, practico-technical, perceptual and creative skills.

The final epistemological premise concerning 'explanation' within critical realism, proposes the existence of multiple possible explanations for the occurrence of an outcome or event (Wynn & Williams 2012). A given result may be attributable to any number of mechanisms operating within various structures and substructures, within potentially competing and complementary contextual conditions. Several combinations of mechanisms may therefore be hypothesised, requiring critical realist researchers to discern between competing theories through a process of 'judgemental rationality' (Wynn & Williams 2012). This is done through a comparison of the explanatory power of various theories as they are housed within the transitive (perceived) dimension of reality (Bhaskar 1979, pp. 73-74).

These epistemological premises are brought into practice through the use of abductive and retroductive modes of inference and scientific inquiry. Abduction refers to a type of inferential reasoning that uses both inductive and deductive logics, in combination or close exchange, to form an explanatory hypothesis (Frankfurt 1958; Peirce 1960) for subsequent inductive or deductive testing. Abduction requires a type of reasoning that moves from the observed effect to postulate on the possible cause/s of that effect. Similarly, retroduction involves '"arguing backwards"… from some phenomenon of interest via metaphor and analogy to a totally different kind of thing, structure, or mechanism that causally governs the behaviour of that phenomenon' (Fleetwood 2014). In practice, critical realist retroduction might encompass collecting the full spectrum of relevant theory, and then through a process of 'conceptual recontextualisation', making a synthetic comparison and combination of these theories (as well as new ideas derived inductively) in order to conclude as to the best possible explanation for the observed phenomenon (Easton 2010; Fleetwood 2014; Wynn & Williams 2012). Retroduction is therefore a creative process, requiring that a critical realist researcher

form novel synthetic links and interconnections between existing and new theoretical insights (Wynn & Williams 2012).

4.3.2.3 Critical realist axiology

Two axiological principles underlie the critical realist perspective. First, critical realism adopts a pragmatic stance in relation to the nature of knowledge. In other words, critical realists are interested in moving beyond the purely conceptual, to a consideration of the practical effects of their objects of knowledge (Olen 2015). As Hartwig outlines (2015, p. 374), pragmatism is regarded:

> *…not as a method which solves problems, but rather which distinguishes real from imaginary problems by the pragmatic principle, according to which we should regard anything outside the confines of conceivable practical effects as idle metaphysical quibbles. Ideas as well as practical deeds must always be assessed by reference to their actual practical cash value.*

Second, the pragmatic ambition of critical realism is to strive towards emancipation. Critical realism was developed upon the axiological premise that: research ought to function as a means to liberate society from constraining social structures and mechanisms (Mingers 2009). Critical realist research is positioned to loosen the bonds of these social constraints, by illuminating and casting a critical eye over the mechanisms that underlie these constraining structures and mechanisms (Hartwig 2015, p. 157).

4.3.2.4 Critical realist case study research

At its core, case study research is simply 'an analysis of social phenomena specific to time and place' (Ragin & Becker 1992, p. 2). The approach taken to conduct these analyses, however, sits within a diverse set of possibilities, which are informed by the various ontological and epistemological assumptions (chosen either consciously or less consciously) by the researcher. Critical realist case study research is characterised by a realist commitment to *causal explanation* rather than simply an attempt to *describe* and interpret the case (as is more common to the interpretivist perspective), yet this is balanced by an awareness of the ways in which knowledge is subjective, thus rendering those explanations perpetually imperfect (Bhaskar 1979, pp. 73-74; Ragin & Becker 1992). As Easton (2010, p. 11) describes:

> *A critical realist approach to case research involves developing a research question that identifies a research phenomenon of interest, in terms of discernible events, and asks what causes them to happen. The key entities involved, their powers, liabilities, necessary and contingent relationships are then provisionally identified. Research then*

> *proceeds by capturing data with respect to ongoing or past events asking at all times why they happened or are happening and taking into account the problems and issues associated with interpreting the empirical data back to the real entities and their actions. The research process is one of continuous cycles of research and reflection. The final result is the identification of one or more mechanisms that can be regarded as having caused the events.*

Critical realists view cases as both real empirical units and somewhat fabricated theoretical constructs (Easton 2010; Ragin & Becker 1992, pp. 8-11). Accordingly, more successful case study research will select or construct a causal explanation with the closest fit to the idealised 'real' ontological reality (Wynn & Williams 2012). The overarching, inter-generational process of research involves a collective research effort to break through or refine theory over time, in order to attain the closest fit with 'the real'. Therefore, critical realist research is abductive in nature, drawing both deductively on the span of available theories, as well as constructing and using new knowledge gained through inductive investigation and logic, in order to arrive at the best possible causal explanation.

In this sense, critical realism aligns well with Walsham's 'multiple theory' perspective (Walsham 1993, p. 71), which suggests that multiple existing theories should be used in research as a 'scaffold' for empirical research, whereby the scaffolding is discarded after it has served the intended purpose (Dobson 1999, p. 263). Somewhat controversially however, this goes against the use of 'no theory' perspectives (Dobson 1999, p. 261), such as grounded theory, which is a method often adopted by critical realist scholars, arguably in error.[8] As indicated by the multi-theory approach taken within Chapters 2 and 3, the current critical realist study aligns closely with Walsham's (1993) perspective.

Critical realists emphasise the deeply contextual nature of cases, including a somewhat permeable inter-relationship between the case and the external environment. This positions a case within more fluid than rigid boundaries. Although certain boundaries might be drawn around an organisation to encompass, for instance, the staff and patients of that organisation, it is important to remember that those boundaries are continually shifting. This may be due to: staff turnover; any broader social, political, cultural, economic or more

[8] An exception to this 'error' is the recent methodological contribution by Hoddy (2019) who devised an abductive approach to grounded theory (as opposed to the more common inductive approach), which is in keeping with the principles of critical realist epistemology.

personal external influences upon those staff members; the flow of patients in and out of the organisation; and more overarching influences such outbreaks of infectious diseases, alongside government policies, fiscal environment etc. Therefore, critical realists would tend not to conceive of cases as having 'hard' boundaries, however, would recommend articulating the relevant timeframes and identifying whether any particular contextual influences were of interest to the study in question. This is consistent with the definition of 'organisation' introduced in Chapter 2.

4.4 RESEARCH STRATEGY AND DESIGN

4.4.1 The development of a novel critical realist method

As observed by Ackroyd and Karlsson (2014, p. 45) 'there is a serious lack of appealing and accessible material on CR-informed methodology to set those new to these ideas on a path to accomplish interesting and insightful research'. This deficit in the literature, therefore, required that the author form a novel, tailored, methodological design for the current study. This novel research design combined insights from three methodological research papers: Braun and Clarke (2006); Wynn and Williams (2012); and Fletcher (2017). The current research was essentially a pilot project for this novel approach and, as a result, there were some necessary iterations, adjustments and changes performed during various stages of its use, particularly during data analysis. For this reason, this chapter outlines and records specific details of what was done (and how and why that may have varied from the original design), whereas Appendix D canvasses the associated rationale, logic and process involved in developing the novel research design. Despite necessary departures from the original study design, there remains scholarly value in the documentation and testing of the design. This is discussed further in Chapter 9.

4.4.2 A critical realist method

This section documents the research decisions and activities that took place at each of the research stages identified in Table 7: research design; data collection; data familiarisation; generating initial codes; searching for themes; reviewing themes; defining and naming themes; and, report. Appendix D provides a description of how research inputs (the three methodological papers cited above), were integrated to form the protocol/guidelines for the

study method, and the below documents the study method itself (see column four within Table 7).

The method used to conduct the empirical study differs from the original study design in several key areas. From a critical realist perspective this variance does not represent scholarly weakness, rather, the capacity for creative and iterative refinement of method is viewed as an essential part of the critical realist abductive and retroductive process (Bygstad, Munkvold & Volkoff 2016; Wynn & Williams 2012). There are two substantial differences between the method initially devised and the method used (as indicated by the use of bold type within column 4 of Table 7). The first relates to the inclusion of a meta-coding step, named here 'coding for coding density', which was inserted between the initial coding and theming stages in order to capture important interconnections between codes that would otherwise have been lost at the 'searching for themes' stage.

The second major variation of method hinges on the issue of theme overlap. Whereas Braun and Clarke firmly instruct that themes must be distinct in the sense that codes may only be allocated to one category or grouping (2006, p. 91), this works against the notion that conditions and factors *interact* to produce certain results at certain junctures, often in complex and continually adjusting, time and context-dependent ways. Upon discovery, this categorical and temporal rigidity of Braun and Clarke's model was deemed wholly unsuitable for critical realist research which explicitly attempts to uncover and chart the movement of interactive factors (entities and their causal powers) in order to postulate the sorts of causal mechanism/s that might explain the observed empirical outcomes (events). Unfortunately, the incompatibility described above was only discovered mid-way through the data analysis stage, requiring adjustments to method during the empirical process.

The discovery of methodological incompatibility was documented across several research Memos[9] (see Memo# 6, 12 and 13 in Appendix I). Beyond the methodological adjustments themselves (as described above) the incompatibility had minimal detrimental impact upon the research process. The requirement to adjust the process of analysis,

[9] Research memos involve forming a written 'chronicle of the research journey… an indelible, yet flexible, record for personal retention or dissemination… memos can help to clarify thinking on a research topic, provide a mechanism for the articulation of assumptions and subjective perspectives about the area of research, and facilitate the development of the study design' (Birks, Chapman & Francis 2008).

however, led to several innovations of method which facilitated the identification of factor interactions and critical realist causal mechanisms, and may offer future researchers a number of analytic tactics to assist in a similar way. Without these methodological innovations, the development of the theorised 'hive model' (as presented in Chapter 5) would not have been possible.

Table 7 Components of the critical realist method

INPUT			**PROCESS** (Study Method)	**OUTPUT**
STRUCTURE	**PRINCIPLE**	**PROCESS**		
Thematic Analysis Structure (Braun & Clarke 2006)	*Critical Realist Principles (Wynn & Williams 2012)*	*Critical Realist Coding (Fletcher 2016)*		
Research Design	• Mediated knowledge • Triangulation & Multi-methods	• Creation of research question • Creation of deductive codes, informed by prior research	• Creation of overarching study design • Development of research questions • Development of deductive codes	• Research protocol • List of deductive codes
Data Collection	• Triangulation & Multi-methods		• Intensive data collection: documentary data and semi-structured interviews	• Documentary data • Interview transcripts
Data Familiarisation	• Explication of events	• Search for demi-regularities	• Reading and re-reading of documentary and interview data • Memo-writing	• Memos • Documentary data table (chronological and narrative structure)
Coding	• Abduction • Retroduction	• Deductive coding • Inductive coding	• Deductive and inductive coding • Review and code reduction, if applicable • **Coding for coding density** • Memo-writing	• List of codes • Memos
Searching for Themes	• Explication of events	• Abduction • Retroduction	• Collation of categories **(allowing for overlap between thematic categories)**	• Conceptual map/s of codes

	• Explication of structure and context	• Conceptual map/s of codes	• Formation of analytic themes • Preliminary analysis of causal mechanisms and conditions • **Secondary coding and theming analysis to explain the evolutionary 'how' and 'why' of the theoretical model**	• Preliminary themes and theoretical model • Memos
Reviewing Themes	• Retroduction • Empirical Corroboration	• Abduction • Retroduction	• Check themes against coded extracts • Check themes against data set • Checking theoretical model through participant validation/ member-checking interviews	• Refinement of themes • Development of theoretical model • Memos
Defining and Naming Themes	• Retroduction	• Retroduction	• Theoretical model • Analysis of causal mechanisms and conditions	• Theoretical model • Final Themes • Memos
Report	• Retroduction • Empirical Corroboration		• Retroduction • Presentation of causal findings	• Report / publication

4.4.3 Research design

This section describes the decision-making process and procedural steps taken at each stage of the empirical process, from research design to the completion of data analysis, culminating in the development of a model and theory. The section ends with a description of the decisions taken to enhance research quality and rigour, and to ensure that the principles of ethical research were adhered to throughout the empirical process.

4.4.3.1 Case site and participants

A large public hospital network, Alfred Health (located in Melbourne, Victoria, Australia), was chosen and invited to participate in the study on the basis of the organisation's record of sustained performance improvement (as discussed below). At the time of writing, Alfred Health is a hospital network comprising three separate hospitals: The Alfred (a tertiary teaching hospital with 674 beds), and two smaller hospital campuses, Caulfield Hospital (216 beds, specialising in community services, rehabilitation, aged care and aged mental health) and Sandringham Hospital (90 beds, providing emergency care, paediatrics, general medicine

and outpatient clinics) (Alfred Health 2019a). The Alfred Hospital was originally founded in 1871 as part of a public reaction to an attempted assassination of Prince Alfred during his visit to Australia in 1868 (Alfred Health 2019b).

The three hospital sites that comprise the Alfred Health network are located in a suburb, south-east of the city of Melbourne. The network operates within a socio-economic context of relative wealth and within a patient catchment that has a higher than average proportion of older persons compared with many other regions of Melbourne (Australian Bureau of Statistics 2019; Stonnington 2019). Cultural and linguistic diversity within this area is relatively low (Australian Bureau of Statistics 2019), and a higher than average proportion of the local population has purchased private health insurance (Australian Bureau of Statistics 2019). Upon first entering Alfred Health services, patients may elect to be admitted as a private or public patient, and a private hospital operates at The Alfred hospital campus alongside the larger public facility.

Alfred Health is funded to provide Victorians with fourteen state-wide specialist services, including: major trauma service; emergency trauma and care; psychiatric intensive care service; the Victorian adult burns service; heart and lung transplant; the Victorian melanoma service; the Victorian HIV service; specialist rehabilitation services; cystic fibrosis services; clinical haematology and haemophilia services; malignant haematology and stem cell transplantation; hyperbaric medicine; sexual health services; bariatric services; and the Victorian neuromuscular laboratory service.

The hospital network operates as a teaching and training facility for clinical education, and maintains an established relationship with Monash University, one of Australia's highest-ranking higher education institutions (Times Higher Education 2019). As a leading site of medical research and clinical trials in Victoria, the Alfred Research Alliance brings together eight organisations for collective and collaborative research activity: Alfred Health; Monash University, Baker Heart and Diabetes Institute; Burnet Institute; Deakin University; La Trobe University; Nucleus Network; and 360 BioLabs.

At various times during the history of the organisation, different administrative configurations of hospitals and campuses comprised the network: more recently, Bayside Health (formed in 2000), and much larger organisational entities such as the Eastern Health Care Network (EHCN), which merged seven hospital networks in 1995, and Inner and Eastern Health Care Network (IEHCN), which merged ten networks between 1996 and 1997. Between

1987 and the time of publication, the name of the organisation and network changed multiple times. For the sake of clarity, the organisation will be referred to by its contemporary name, Alfred Health, throughout this study.

The performance of Alfred Health was measured and compared with other hospitals using publicly available quantitative data, extracted from the National Health Performance Authority 'MyHospitals' website (Australian Institute of Health and Welfare 2014) (see Appendix C). Recommendations for case site selection were presented to a panel of experts for review. The panel reviewed the quantitative data for each case site, and made a final consensus-based decision to select Alfred Health as an example of an organisation that had achieved high performance in comparison with peers and had recorded a long history of performance improvement. After selection, a process of triangulated validation was also undertaken to check the veracity of this decision. Appendix C details this process of decision and validation.

Alfred Health was contacted, and after approval had been granted from the Executive team, the organisation subsequently agreed to participate in the study. An initial unstructured interview took place with a senior member of the organisation, and the aims of the study were described and discussed in detail. From this, several recommendations for key interview informants were obtained, particularly identifying potential informants who had been with the organisation for many years and could therefore comment upon changes to hospital performance that had occurred over a long period of time. An initial pool of twelve potential interviewees (from diverse professional backgrounds and roles) was drawn together, eleven of whom agreed to participate in the study. A second group of six interviewees was drawn together, sourced either from recommendations recorded in prior interview data, or from the results of documentary analysis. Three key informants were asked to participate in a second round of interviews for the purpose of participant validation/member-checking. During these later interviews the preliminary findings of the study were presented, and feedback on the accuracy of findings and interpretations was sought. Interviewee descriptive data is included in Appendix G.

The primary focus for research was the organisational unit of analysis, rather than particular departments or divisions of the organisation, or various individual (psychological) perspectives or experiences contained within the overarching organisation. Therefore, interview questions were framed to encourage reflection on the function and performance

at this broader unit of analysis, rather than at more granular levels. For instance, interview questions were phrased to elicit descriptions and explanations of how and why the organisation works or has worked, as opposed to measuring for individual behaviour, attitudes or perceptions. Triangulated data were also sourced directly from the organisational unit of analysis, including performance records, reports, media accounts, and historical narrative documents, which were used to structure, direct, build on and verify interview data.

4.4.3.2 Research protocol

Subsequent to the development of a novel research strategy for critical realist case study research (Appendix D), a research protocol that appropriately addressed the study's research aims was also devised. Critical realist research is, by design, more iterative than the positivist paradigm would encourage (Edwards, O'Mahoney & Vincent 2014), and so, importantly, the protocol was developed as a guide rather than a prescription. This is fortunate given that the protocol was later found to contain within it a conflict of assumption (as introduced above).

4.4.4 Data collection

Pairing interview with documentary evidence provided an opportunity to structure and triangulate data sources prior to analysis and interpretation. This helped to develop a chronological narrative view of the organisation's performance, and to ensure that disconfirming evidence, where it arose, was more readily uncovered, and that sources were cross-checked to avoid potential bias.

4.4.4.1 Documents

Access to key organisational documents was sought, including publicly available annual reports, historical information, and media reports. Access to documentation not publicly available (e.g. annual reports between 1995 and 1999 years) was provided by the Alfred Health Archivist following permission to access this information provided by the organisation's Executive.

Documentary analysis was used to compile a chronological record of performance-relevant events over the period under study. For instance, planning documents and reports provided a timeline of improvement events and phases – which helped to structure and make sense of other data. This also allowed data collected through interview to be verified and

reconsidered, as necessary. Conflicting and disconfirming evidence between interview and documentary sources prompted further investigation and analysis, helping to build a 'three-dimensional picture' of the case site, its history, and a descriptive explanation for performance outcomes.

4.4.4.2 Interviews

Nineteen semi-structured interviews were conducted, in three stages. Eleven interviews were conducted during the first stage of data collection in August 2015. These initial interviews helped to build a general understanding of the events that led to the hospital network's performance outcome. Interviews were sought with a broad range of individuals at various levels of seniority within the institution, including hospital executive and senior management staff, middle management, and a smaller number of frontline clinicians. The second stage of interviewing involved a further six interviews, conducted in December 2017. These interviews occurred after the initial eleven interviews had undergone preliminary analysis. These latter interviews sought more specific details in order to address the research question. A third stage of interviews involved returning to three interviewees in order to conduct a participant validation/member-checking process. These interviews involved an approximate 20 to 30-minute presentation of the preliminary findings and early theoretical model derived from completed data analysis, in order to elicit feedback including confirming and disconfirming evidence and reflections. The final three participant validation interviews were professionally transcribed, but not coded. Rather, key reflections were used more directly to refine the existing model and theory.

Interviewees were recruited by direct invitation, and arrangements for interview location and times were guided by the preference of the interviewee, and either arranged by the Executive Assistant to the CEO, or the researcher and participant, directly. Interviewees provided written consent and their anonymity and confidentiality was upheld through stringent data transfer and storage protocols. A semi-structured interview guide is included in Appendix E. The guide was followed by topic area only, as not all prompting questions were appropriate in all interviews. Interviews were audio-recorded and transcribed (either professionally or by the researcher), and field notes were also taken at interview to record points of emphasis during interview and aspects of the interview not otherwise recorded.

4.4.4.3 Data storage and organisation

Although Yin's (2014) classic and largely positivist approach to case study research is not necessarily consistent with the ontological and epistemological position taken within this study (Bhaskar 1978, 1979), there are a number of practical guidelines from Yin's approach that have proven useful and appropriate for this study. Following Yin, data was documented and organised through a database to enhance reliability of the study. Data organisation practices facilitated the establishment of a 'chain of evidence' for use during data interpretation and for the reporting of findings (Yin 2014, pp. 127-128). The database ensured that a direct logical link could be made between the case study report (containing data interpretations and conclusions) and evidence contained within the database. Data were securely housed, both electronically and in a physical copy, held at the University of Tasmania.

4.4.5 Data analysis

It is important to note that the process of data treatment and analysis was more fluid and iterative (although not recursive) than what is described in Table 7, and what can be described within a linear diagram (Van de Ven 2015). Some weaving back and forth between data sources, and stages of analysis was necessary, particularly for the stages between 'searching for themes', 'reviewing themes' and 'defining and naming themes'. These stages involve a complex process of abduction and retroduction, and as such, required a constant flux and balance between the empirical (observed and measured) with the analytic (abstracted and theorised). In practice, this involved the collection and analysis of data in several bursts, verified or built upon at various stages of development.

4.4.5.1 Documentary data

Documentary data were read in detail, and key events of relevance to hospital performance were compiled within a large database. The database captured information both chronologically (e.g. each row captured information, sequentially, relating to a particular financial year) as well as thematically (e.g. columns corresponded to key deductive categories or sub-categories such as 'environment' or 'strategy'). An excerpt from the database and a more abstracted summary of the key events timeline is included in Appendix F. The analysis of documentary data was essentially a process of 'explication of events' in which a number of potentially important milestone events (including actions and outcomes) were detailed and abstracted in chronological form.

The process of constructing a chronological sequence of events from documentary data was done in tandem with the first phase of interviews and was not completed until after the first eleven interviews had been collected. The timeline of events was drawn on, in a far more substantial way, in preparation for the second phase of interviewing, in order to help direct interview questions and data analysis. This allowed for a higher level of inductive freedom to unfold within the first phase of interviewing, whilst adding a more focused structure to later interviews. For example, some interview questions in the second phase of interview data collection focused on some of the following 'gaps': the threat of closure experienced during the mid-1990s; the financial management of the organisation; the approach to organisational strategy, and HR practices.

4.4.5.2 Interview data familiarisation

Transcribed interview data were read and re-read several times in order to begin forming a set of initial responses to the data in its raw form. A relatively loose, preliminary search for demi-regularities accompanied this process. This involved noting where partial 'regularities' or patterns occurred, which may be indicative of causal tendencies within particular contextual conditions. Possible demi-regularities were noted within reflective memos throughout the data familiarisation process. For example, Memo #2 highlighted the prominence of organisational culture as a thread throughout the initial interviews, and Memo #1 looked at patterns within the discussion on HR practices (see Appendix I for copies of all memos). Further, several more methodological reflections were made during this process. For example, an excerpt from a memo (Memo #3) during this stage highlighted the difficulty in forming discrete categories, particularly when attempting to form an understanding of the sorts of dynamic mechanisms that may have brought about a certain event, outcome or result:

> *When I read through the initial 11 interviews, I started a process of noting a few 'highlights' at the top of each transcript after it was read. These were a collection of my thoughts and reflections when I had my 'head inside' the transcript, and are a combination of the things I thought were most important or striking, and a collation of some of the key margin notes or key words that the respondent used.*
>
> *… I am just interested to see which of these 'highlight' words have seemed to float to the surface, and how patterns between those words might function [*and so I created a list under 'environment', 'attribute', 'strategy' and 'performance' categories*]…*

*What struck me, during this exercise [*the creation of this list*], was how difficult it is to put some of these factors into neat categories. If it is a strategy, it is hard to separate the attribute that enabled that strategy, or the environmental impetus that created the urgency to act. The separation of these categories is useful in one respect - to give a sense for the structure of necessary and sufficient factors (i.e. that you often need a bit from each category) - and this is really useful for dispelling the myth that there is 'one' thing, 'one' intervention, 'one' approach that is the magic bullet for change. But on the other hand, the simplification risks masking the very real relationships between these factors.*

4.4.5.3 Generating initial codes

Theoretical (deductive) codes were drawn from the results of the literature reviews (see Figure 3 and Figure 5 included in Chapter 3). After the removal of 'environment', 'attribute' and 'strategy' as overarching umbrella codes, twelve categories of explanation were used as deductive codes: 'funding model', 'demography', 'regulation', 'reputation', 'structure and governance', 'leadership and management', 'organisational culture', 'financial strategy', 'quality improvement', 'innovation and IT', 'human resources', 'knowledge and learning'. Nine additional codes were added to this list. Five corresponded with the results of the thematic analysis conducted within the realist literature review: 'context', 'fit', 'capability', 'reform', 'localise'. Four corresponded with the dimensions of hospital performance used in the literature review: 'access', 'effectiveness', 'efficiency', and 'safety and quality'. In total, twenty-one codes were used deductively during the first phase of interview data analysis.

As an abductive rather than a purely deductive exercise, these twenty-one codes were supplemented with inductive codes, if and when a deductive code proved insufficient. Judgements of 'sufficiency' were made on the basis of content (broadly), or level of specificity, allowing for the creation of inductive codes at more granular levels than the theory-derived codes would allow. For example, several more granular inductive codes such as 'consumers articulating needs', 'generational shifts' and 'geographical location' were developed, despite their likely fit within the overarching 'demography' deductive code.

Interview data were uploaded to NVivo 11 software to support the coding process. All data were systematically scanned for coding, however only data extracts that were adequately related to the research question were coded. Essentially, this process involved seeking out all aspects of the data that were relevant to the research question and assembling collated data that related to each code. This process led to a rapid expansion of codes, and

at the completion of coding for the first eleven interviews, 165 codes were in use. As noted within Memo #1 (written after the first interview was coded), the process of coding involved:

> *…I have a few reflections. First, I'm coding at a more granular level than the deductive codes will allow, so the deductive codes are getting very little use, and there is a rapid creation of new codes… This is because, if I were to use the more overarching deductive codes, I'd never be able to 'get back' that level of granularity and descriptive detail.*
>
> *…a quick note on the process I went through to code. I went through the material in NVivo without reference to earlier notes on the transcript, and I coded as closely to the data as possible. I didn't use in vivo codes per se, but I tried to stick to the content in a fairly concrete way (largely 'inductively' as explained above). Sometimes I needed to circle back to an earlier part of the transcript if I realised that a later code that I had created was also relevant to an earlier segment of text. So, it was a circular, back and forth motion… After I had been through the whole transcript in NVivo, I then went back to my highlights and margin notes from the hard copies of my transcripts (the ones I read during the data familiarisation stage). I then added new codes, where I hadn't adequately captured something in the more recent coding exercise. After that I then considered some of my deductive codes, particularly the 'interaction' codes to see if any applied to the transcript. I didn't force this, and some didn't apply and weren't used at all, but in some cases they were really relevant…*
>
> *So coding was a fairly lengthy process and I 'took my time'. Again - I am very conscious that it will be difficult to capture this level of detail later, and I can always go through the merging and collapsing of codes into categories, so I'm perhaps over rather than under-coding, and I am really 'investing' in this process to make sure it is thorough… (Memo # 1)*

4.4.5.4 Maturation of the coding process

As Memos #5, #6 and #7 discuss (see Appendix I), there is a delicate balance between remaining faithful to the raw data versus more of an extension into data abstraction. In the language of Braun and Clarke (2006), this might be characterised as 'concrete' versus 'latent' coding, however, the balance tended to play out on other fronts as well. As described within the above excerpt, earlier stages of coding tended to be characterised by more concrete coding, however, as the analysis progressed and a greater familiarity with the data, codes, and emerging demi-regularities unfolded, there was a tendency towards the introduction of more abstract interpretations. For instance, as described within Memo #8 (see Appendix I) the development and use of the code 'agency' was an early example of a higher level of abstraction – particularly so, as the word agency was not used by interviewees, however it did help to capture a broader pattern evident within the data. The degree to which this code was derived from the data, or projected on to the data (potentially via researcher bias) was discussed and problematised within Memo #8. Other aspects relating to the balance between lower and higher levels of analytic abstraction included: the degree to which new codes may

foster greater accuracy however also risk 'splitting hairs' with existing codes that are similar (see Memo #5); the degree to which placing codes in parent/child code hierarchies forces abstraction and simplification at, potentially, a too early stage of the analytic process (see Memo #6); and the degree to which selecting or generating codes ought to remain naive to the potential future use of that code (see Memo #7). Memo #9 documented the realisation that these sticking points within the coding process were symptomatic of the overarching abductive research process:

> *Through discussion with my research supervisors, it became apparent that the uncomfortable 'niggles' that I had been feeling (and described in Memo #6, #7 and #8) all seem to lead back to an inherent tension within the abductive research process. That is, that each of these 'niggles' represents a cross-road or decision point, offering a more or less deductive or inductive response to the particular problem of method that had arisen. (Memo #9)*

Following the completion of a further five interviews (increasing the pool of interviews to sixteen in total), a second phase of coding was undertaken. This second round of coding unfolded similarly to the previous process, however, greater familiarisation with the codes and common threads across the data allowed for the development of further latent codes. Memos written during this period continued to deepen reflections on the issue of 'splitting hairs' (see Memo #10), and raised the issue of the inter-relationship between codes. In particular, Memo #12 discussed how the process of coding may risk masking the inter-relationships between codes, due to the more rigid nature of classical categorisation and the incapacity for NVivo software to support a more fuzzy-logic approach to categorisation (Klir & Yuan 1995). As described within Memo #12:

> *Another of my (many) coding anxieties and observations relates to the interconnections between codes. So, for instance, for almost all passages within my transcripts, I would end up coding the same data extract with multiple different codes in order to describe the entirety of the event or phenomenon…*
>
> *…'The whole is different from the sum of its parts'. That is - the (extensive!) list of codes under each data extract describe the story being told, but if this list were to be removed from the story, and then used in place of the story, they would not, in and of themselves, adequately capture the true essence of what is being conveyed by the interviewee. Rather than being a potent distillation of the story, the codes appear to be some sort of pale, watered-down approximation.*
>
> *Taking this further, even if all I was left with was the list of codes, the thematic analysis process would then separate this list and treat each code independently. There is no capacity to retain the unique configurations of codes that relate to a particular data extract/story and use these in the analysis. In contrast, for the purpose of my study, it is very important to map the interconnections between these codes. One of my*

primary questions is essentially: what (if any) patterns exist in the way that various determinants/factors come together to impact on performance? I have done some of this factor interaction mapping already, using deductive codes that emerged from my literature review, but I feel as though some further inductive work may be needed to look at these factor-interactions and potential recurring patterns, before taking the leap from coding to theming. (Memo #12)

This led to the decision to add an additional stage of coding, named here: 'coding for coding density'.

4.4.5.5 Coding for coding density

The coding for coding density stage that was conceived and developed during the analysis was described within Memo #13 as an inductive-interaction coding process, however later it came to balance this with a more deductive phase. The process involved going back over the entire dataset to target areas of high coding density across the entire dataset (i.e. where the same passages were coded with four or more codes) and searching inductively for meaning that may emerge from the cumulative and collective use of these particular set of codes. Where meaning was found, a new code with a higher level of abstraction was created. The coding for coding density process aimed to address the second research question, whereas previous coding had focused more so on the first research question. Key reflections on the coding for coding density process were noted:

*The question is: what is the interviewee really trying to convey here? What are the patterns between passages of this type, and between interviewees? What is really going on? [*It was*] a constructive rather than deconstructive process. And as I have written about in earlier memos, a process that I feared wouldn't be possible if I were to simply begin mapping and organising the codes under a hierarchy - divorced from the rich content of the interviews…*

…The process… began to take shape and build a momentum of its own. I began noticing many instances in which interviewees spoke about the case site as 'not very hierarchical'. This was mixed with codes like 'agency' and 'individual change leader', or in which interviewees spoke of highly cooperative and collaborative systems with trusting and respectful communication between all levels and all staff groups. Not being 'hierarchical' allowed groups of individuals to start working together, in a way that suited them, to make improvements…

*I was reminded of a conversation I had had with my brother over Christmas. I had been trying to give him a summary of the important findings from my research-thus far. I remember that the words 'hive mentality' had just popped from my mouth, seemingly without really being processed by my brain. I remember thinking - 'wow, that's interesting, I hadn't thought of that'. And so, I began using a new code 'hive mentality' to describe… [*various*] passages…*

As such, the process invited a much higher level of abstraction and can be seen as the beginning of the critical realist retroductive process. As described above, this was also the first introduction to the use of metaphor, which became an important vehicle for data interpretation within later stages of retroduction. Memos #14A and #14B describe the unfolding of this process and the abductive exchange between direct reflections on the data and what is known from the academic literature on notions that relate closely to the 'hive' metaphor (including key concepts from the complexity lens such as swarm intelligence, collective intelligence, feedback loops, emergence etc.). During this process, various abductive codes were created that bridged the inductive-deductive divide. This included codes such as 'heterarchy' (as discussed in detail in Chapter 7), which both corresponded with the observed non-hierarchical way of working at the case site, as well as relating to more deductive understandings of honeybee 'hive' behaviour and group decision-making.

It was also during the coding for coding density stage that prominent latent codes were 'tested' against the data. New 'contra' codes were created and used deductively during data scanning, in order to capture disconfirming evidence. For instance, 'contra to heterarchy' was used to organise data that did not support the notion that the case site worked as a heterarchy. Despite an active search for disconfirming evidence, by the end of this process 'contra' codes contained few excerpts. The evidence they did contain, however, was helpful to the data interpretation stage.

Finally, the last analytic process prior to theming involved reading all data excerpts contained under each code as a review of code accuracy, consistency and cohesion. This process helped to: i) re-familiarise the researcher with the codes and their meaning; ii) guide a process of code organisation, re-naming/defining and, to a degree, code reduction; and iii) identify and problematise codes that were found to be inconsistent or lacking in consistency. For instance, some codes, such as 'happy' were used to describe data that referred to both happiness and unhappiness, which potentially represented an error within the coding process, particularly if this code was then used within the theming stage without an awareness of the code's dual meaning.

4.4.5.6 Searching for, reviewing and finalising themes

As per Braun and Clarke (2006) an initial attempt was made to organise the codes, categorising them under a hierarchy of parent-child structures. The underlying intent for this

process was to collate codes, identify and reduce overlap between codes and sets of related codes, and eventually, help to identify higher-order latent analytic themes. This process was commenced using NVivo 11 software, however it was quickly discovered that the rigidity of both method and tool (software) was not compatible with the aims of the research: to identify the interconnection between factors and conditions towards an understanding of the 'how' and 'why' mechanisms that may explain the performance results of Alfred Health. Unfortunately, adherence to firm rather than fuzzy categorisation, results in a masking of networked code interactions and interdependencies (as discussed within Memo #12, Appendix I).

Acknowledging these difficulties, copies of the NVivo file were created (as per Memo #12) and various combinations of parent-child hierarchies were trialled and considered. A number of these versions were printed and annotated. Following Edwards, O'Mahoney and Vincent's abductive inference process (2014, p. 14), the annotation process involved a secondary categorisation of codes into key critical realist concepts, such as 'event', 'entity', 'structure', 'causal power', 'causal mechanism', 'context'. Loosely, this charted the relationship between observed events, potential generalised explanations for those empirical observations, and a reflection on the potential entities, structures and mechanisms that may have given rise to those events. In turn, this process helped to provide an analytic structure in support of the emergence of a more thematic structure, ultimately moving towards theory development.

Particular consideration was given to the contextual conditions that may have influenced or shaped the observable events. Codes that related to the contextual conditions were used to identify patterns in events, over time and in context. In essence, this marked a continuation of the retroductive process, seeking to understand 'what the world (i.e. broader context) must be like in order for the mechanisms we observe to be as they are and not otherwise' (Edwards, O'Mahoney & Vincent 2014, p. 17). This abductive exercise thus 'contextualised' emerging notions about prominent patterns and potential themes evident from the data.

Given the density of interconnections between codes, it was necessary at this point to begin a series of hand-drawn diagrams that attempted to organise and illustrate various aspects of the empirical content (see Appendix J). In the language of Braun and Clarke (2006) this might be referred to as the 'conceptual map of codes' stage, however this process shares

strong ties with the abductive research tradition (Stjernfelt 2000). Important codes (i.e. codes that persisted as 'parent' codes within the various iterations of code hierarchy) were used as representatives of more granular codes, and incorporated into various different diagrams with different purposes. For instance, one early diagram organised the codes under environment-attribute-strategy-performance deductive categories. Another diagram looked at the codes more inductively, and simply traced the network of relationships between codes (ultimately resembling a spaghetti diagram) with some codes more or less densely connected by lines, indicating potential themes of importance and pointing towards possible mechanisms. Another early diagram organised the codes chronologically, identifying codes that were prominent within distinct eras of the organisation's history.

Moving back and forth between this more synthetic, diagrammatic process, and a more analytic and conceptual one, a search for prominent patterns, persistent clusters of codes, and strong interdependencies between codes and code clusters, helped to both reveal and construct a set of provisional themes. A list identifying the prominent structural attributes, managerial attributes, collective attributes and organisational routines that appeared to underpin performance outcomes was generated, analytically (see photographed example within Appendix J). From this list, higher-order descriptors of prominent code clusters were used to create key thematic titles, such as 'hive purpose', 'group consciousness', 'consensus' etc. These emerging themes were viewed as conceptually overlapping, and the subsequent diagrammatic representation of these interconnecting parts began to take shape, using visual forms resembling Venn diagrams. Twelve iterations of this diagrammatic representation were made (see Appendix J), before arriving at the more refined 'hive model' as presented in Chapter 5. This process of diagrammatic refinement occurred in tandem with a process of theme definition, and the refining of theme names.

A subsequent analytic process sought to uncover 'how' and 'why' explanations for the presence and evolution of these thematic constructs (for example, how and why the case site achieved a sense of 'hive belonging' among staff). The first part of this process involved methodically working through the data extracts under each code associated with the theme of interest (within NVivo software), and listing all of the observable events or relevant contextual conditions referred to within these extracts (with pen and paper). Where similar types of events or conditions were noted, such as 'making data transparent and relatable', these multiple extracts were collated. This represented a re-coding process working

specifically within the broader scope of each theme. These new codes were then sifted and collated and linked to other existing themes, as relevant to the question of how and why these thematic constructs had evolved to be the way they did. Key events and key contextual conditions were identified and were drawn on to infer the sorts of causal mechanisms that may have given rise to the theorised constructs. The choice to conduct this analytic process with pen and paper was: i) to avoid any coding-contamination between these two phases of analysis; and ii) to allow for the multiple use of codes across various constructs.

It was important to review provisional themes and theoretical explanations, both empirically and analytically. The empirical review involved returning to the raw data a final time (as captured within NVivo software) to systematically check whether provisional themes appropriately matched the corresponding codes and coded extracts. For example, a key question was: 'is the data extract adequately represented after distillation and abstraction as a theme?'. As a reflexive process, it was particularly important to consider rival explanations, data that was not represented by the provisional themes, or was incongruent with the themes that had been developed. The 'contra' codes (introduced earlier in this section) were again useful for this process.

A final review tactic was more analytic in approach. The tactic follows Runde (1998) and is somewhat particular to the critical realist perspective. It involved applying four causal test questions (Runde 1998) to the thematic and theoretical model. First: are the causal factors of the phenomenon actually manifest in the context? If the causal factors were part of the context, were those factors causally effective? Do the causal factors provide a satisfactory explanation? Does the proposed mechanism provide causal depth? Using these considerations, both provisional themes and overarching theoretical model were refined. This represented a continuation of the retroductive process.

4.4.5.7 Participant validation and member-checking

Following data analysis and the development of draft findings, three 'member-checking' (Thorne 2008) interviews were conducted as part of a participant validation process. Interviewees were purposively sampled, based on their capacity to provide feedback on: i) the organisation's overall performance (rather than just one aspect of performance); and ii) the evolution of the performance trajectory over time. Data from member-checking interviews formed an essential component of the 'empirical corroboration' process, and

directly assisted the final interpretation of findings. In some cases, evidence from the 'member-checking' process offered new or nuanced perspectives to the draft interpretations and findings. These data were introduced and discussed at relevant points throughout the findings chapters.

4.4.6 Research quality and rigour

Various aspects of research quality were considered prior to the study taking place, and several tactics employed in order to maximise research rigour and overcome biases. In qualitative research, notions of credibility, dependability and confirmability (Williams & Hill 2012) are more relevant than validity and reliability (from the positivist tradition) (Houghton et al. 2013; Tobin & Begley 2004). 'Credibility' is a little like the positivist notion of internal validity and relates to whether or not participants would agree with the findings, or whether a reader is able to understand the findings of the research (Williams & Hill 2012). 'Dependability' is somewhat akin to the idea of reliability and refers to whether or to what degree interpretations of the data are consistent (Williams & Hill 2012). 'Confirmability' is similar to 'objectivity' and corresponds with how a researcher might account for their own research interests or perspectives, rather than allowing these interests to drive the findings and outcomes of the research. Confirmability is achieved through researcher reflexivity (Houghton et al. 2013; Williams & Hill 2012).[10]

Tactics to maximise research rigour are described below in Table 8. These tactics involve: the use of multiple sources of data (interview and documents); selecting a broad spectrum of interviewees from various different levels and departments within the organisation; the use of respondent data validation/member-checking (for data interpretation – as described above); the establishment of a logical 'chain of evidence'; and the development (and use, as far as possible) of a protocol/research guide to increase

[10] The term reflexivity describes a practice in qualitative research studies 'where researchers engage in self-aware meta-analysis… the project of examining how the researcher and intersubjective elements impinge on, and even transform, research' (Finlay 2002). According to Finlay, there are five ways to approach reflexivity: introspection; inter-subjective reflection, mutual collaboration, social critique, and discursive deconstruction As prominent critical realist, Margaret Archer, suggests: 'the distinguishing feature of reflexivity is that it has the self-referential characteristic of "back-bending" some thought upon the self, such that it takes the form of subject-object-subject… reflexivity always involves that mental and self-referential "back-bending" upon oneself some notion, whose referent may be trivial or crucial' (Archer 2009).

replication logic and a systematic record of methodological detail. These tactics helped to increase research credibility. To address potential issues of confirmability, reflexivity (as explored through memos) was an important component, along with the use of a highly organised database for case study data collection and retrieval. Dependability was increased through the use of a case study protocol/guideline for data collection, and the use of the organised database for data collection and retrieval.

Table 8 Considerations for quality research design: measures taken to uphold rigour

Dimension of research rigour	Measures employed to enhance research rigour
Credibility	• Use of multiple sources of data including interview and documentary analysis (triangulation) • Interviewee diversity, including level of seniority within organisation • Establishment of a 'chain of evidence' • Use of respondent validation / member-checking interviews with key informants • Where possible, use of replication logic, and the logging of a detailed methodological record
Confirmability	• Reflexivity (e.g. deep reflection and memo-writing) • Address rival explanations within data analysis
Dependability	• Development and use (where possible) of a case study protocol for data collection • Use of a case study database for data collection and retrieval

A fourth dimension of qualitative research rigour, 'transferability', is also frequently introduced alongside credibility, dependability and confirmability (Houghton et al. 2013). Transferability is similar to the idea of external validity, in that it refers to the degree to which the research findings and insights might be relevant to other settings. The notion of generalisability has a very specific meaning within the critical realist tradition and is discussed in Part C and Chapter 9 and therefore has not been included in this section.

4.4.7 Ethical considerations

This study received ethical approval through the University of Tasmania Human Research Ethics Committee (ethics reference number: H0014592).

4.5 CONCLUSION

This chapter served three purposes as described within three distinct parts. First, as a logical extension to what is known and not known on the topic of hospital performance, the research aims, goals and questions guiding the empirical study were articulated. To summarise, the broad aim of the study was to explain how and why various environmental, organisational and strategic factors were able to influence the performance of a high performing hospital. Second, the study was situated within the broader context of solutions to the philosophy of science, and a rationale for the approach and perspective chosen to guide the study – critical realism – was introduced. Critical realism was chosen as a pragmatic 'middle-ground' between positivist and interpretivist paradigms, offering an abductive (both theory-driven and theory-creating) approach to case study research. Third, the critical realist method developed and drawn on to undertake the empirical study was described in detail. This involved combining the structure offered by qualitative thematic analysis alongside the principles of critical realist ontology and epistemology. As is consistent with the critical realist approach, the devised method was adapted throughout the research process, offering new methodological insights to scholars interested in pursuing critical realism for original research.

Part B of this thesis (encompassing Chapters 5, 6 and 7) reports on the findings of the empirical study, and theoretical interpretations regarding their meaning and significance.

PART B. EMPIRICAL FINDINGS AND INTERPRETATIONS

Chapters 5, 6 and 7 present empirical findings and interpretations from an in-depth case study analysis of Alfred Health. Consistent with the terminology appropriate for qualitative research, the word 'findings' rather than 'results' is used to describe these chapters. Whereas the term results usually indicates the reporting of empirical observations and measurements (relatively) free from interpretations introduced or by the researcher (Sandelowski & Barroso 2002), findings indicates a more nuanced blend between empirical observation and the author's theoretical analysis.

A description of Part B chapters and their interconnections

Chapter 5 describes the key elements of the phenomenon under study. In other words, in order to explain the 'how' or 'why' of something we must first establish 'what' that something is (Plato in Waterfield (1994)). As such, Chapter 5 culminates with the presentation of a theoretical model describing prominent structures, performance improvement capacities, processes and routines that appeared to be in operation at Alfred Health at the time of data collection. The theoretical model uses the metaphor of the 'hive' – drawing a biomimetic link between the social behaviours and collective performance capacities of highly sophisticated eusocial insects such as honeybees or ants, and the sorts of attitudes and behaviours revealed by interview data at the case site. Chapter 6 begins to address the questions of how and why the organisation came to be this way by examining key events and developments that characterised the organisation from the late 1980s to the late-2010s. In particular, a link is drawn between the ways in which the unfolding events may have been associated with the development of the organisation's hive-like characteristics.

Chapter 7 describes and proposes a series of theorised causal mechanisms as explanations for why and how Alfred Health achieved the performance outcomes that it did. The first section of the chapter argues that progress made within the three organisational periods marked important developmental and evolutionary steps. The second part of Chapter 7 examines the extent to which people, both leaders and non-leaders, were able to

shape the process of change at the case site (deliberately or more inadvertently) from the late 1980s onwards.

Critical realism in practice: how chapter content relates to critical realist principles

As described within Table 9, Chapters 5, 6 and 7 each correspond with various critical realist ontological concepts: entities (and their structures, essences and causal powers); events; and causal mechanisms. Broadly speaking, Chapter 5 examines the entities and structures that existed within the case site. Chapter 6 examines a selection of the prominent observable events that appear to have shaped the case site. Chapter 7 offers various explanations as to how and why the sequence of these events were causally significant, and further, makes an in-depth examination of the causal powers of leaders and non-leaders of the organisation. Thus, Chapter 7 offers a series of explanations as to the underlying causal mechanisms (including upward and downward causation), that may explain the performance outcomes of Alfred Health.

Organising the chapter content in this way is consistent with the underlying epistemological and methodological principles for problem solving used within critical realist research (Wynn & Williams 2012, pp. 795-799). Critical realists must first explicate observable phenomena – entities, structures, context, and events – prior to the development of possible explanations as to the unobservable causal mechanisms at play. It is worth noting that, in reality, the continual interchange and overlap between entities, structures, causal powers, contexts, and events within the empirical data set often made it impossible and rather impractical to delineate these concepts in an overly strict way. Rather, it is more useful to chart the fluid movements between these categories, thus providing a better foundation for the somewhat creative process of data interpretation via retroduction (Wynn & Williams 2012).

Table 9 The correspondence between chapter content, research questions and critical realist concepts

	Summary of chapter content	Corresponding research question*	Description of how the chapter content corresponds to the research question	Corresponding critical realist concept

Chapter 5. The Case for a Hospital Hive Mind	Chapter 5 offers an examination of:
	• Organisational cultural attributes and processes (factors) of importance to performance outcomes
		Research Question 1.
		What were the key contextual conditions and organisational factors that gave rise to Alfred Health's trajectory of high performance and sustained performance improvement?
			Chapter 5 addresses research question 1 through:
			• An identification of prominent *factors*
				• Entities
				  • Structures
				  • Essences

Chapter 6. The History of Hive Attributes: A Coalescence of Conditions and Factors	Chapter 6 offers an examination of: • The sequence of key events (contextual conditions and actions) that unfolded from the late 1980s onwards, and the influence that these conditions had on the development of organisational cultural attributes (factors)	Research Question 1. What were the key contextual conditions and organisational factors that gave rise to Alfred Health's trajectory of high performance and sustained performance improvement?	Chapter 6 addresses research question 1 through: • An identification of key *conditions* and their chronological sequence	• Contextual conditions • Events

		Research Question 2.
		How and why did these key contextual conditions and organisational factors come together to produce this result?
			Chapter 6 addresses research question 2 through:
			• An exploration of the *interactions* between *conditions* and *factors*
				• Contextual conditions
				• Events
				• Entities
				  • Structures
				  • Essences
				  • Causal powers

Chapter 7. Time and Power: Temporal	Chapter 7 offers:	Research Question 2.	Chapter 7 addresses research question 2 through:	• Causal powers

Mechanisms and the Spectrum of Control	• Temporal mechanisms: An explanatory interpretation of the role of key events, conditions and factors, and the effect of their interactions and combinations on the evolution of performance at the case site • Mechanisms of agency: an explanatory interpretation of the causal powers and possible causal mechanisms enacted (deliberately, or less deliberately) by leaders and non-leaders towards the development of organisational attributes and processes for performance improvement	How and why did these key contextual conditions and organisational factors come together to produce this result?	• An exploration of the *interactions* between *conditions* and *factors* • An exploration of *how and why factors* of temporality and agency were able to influence the performance result	• Causal mechanisms • Upwards causation • Downwards causation

**Note, qualifiers have been removed from the full text of research question 1, for use within this table.*

5 THE CASE FOR A HOSPITAL HIVE MIND

… for so work the honey-bees,
Creatures that by a rule in nature teach
The act of order to a peopled kingdom.
– William Shakespeare, Henry V: Act 1, Scene 2, 1599

This chapter offers an in-depth examination of the organisational factors, including the structures, attributes and routine processes, that data analysis would suggest were of importance to the observed performance capacity of the case site. As such, this chapter relates to critical realist notions of: 'entities' and 'structures', their 'essences' and normative and configurational 'causal powers'. The chapter partially addresses the first research question: what were the factors and conditions that gave rise to sustained performance improvement within an Australian public hospital? The contextual conditions (historical events, milestones or shifts) that gave rise to sustained performance improvement are described within Chapter 6.

The chapter is structured in four parts. The first part describes findings from the data that relate to a set of prominent organisational cultural attributes. The second part examines data that describe the operation of three central feedback loop mechanisms that appear to sustain these cultural attributes and that appear to influence the distribution of power and decision-making authority throughout Alfred Health. The third part describes several routines concerning the ways in which the organisation interacts with the environment, including both environmental opportunities and constraints. Each of these elements are brought together and presented within a diagrammatic theoretical model. The 'hive' model and corresponding use of 'hive' as a metaphor are drawn together and discussed within the fourth and final part of the chapter. This final part presents the first of six explanatory propositions that comprise the theoretical contribution offered by this study.

5.1 HIVE ATTRIBUTES

Thematic analysis revealed four prominent cultural attributes, credited by interviewees as fundamental to Alfred Health's performance and performance improvement capacity. The

attributes are labelled 'hive' attributes: 'hive purpose', 'hive energy', 'hive consciousness' and 'hive belonging' (see Figure 7, below). As mentioned in Chapter 4, the use of the word hive reflects an interpretative metaphor that arose during the early stages of data analysis (see Memo #14A and 14B, Appendix I), and which is described and discussed in detail in the final section of this chapter. In brief, however, the hive metaphor describes a set of collective motivations and processes, a collective coordination of activity, and a sense of collective identity that exists as a strong pattern (or, to use a critical realist term: tendency) within the data.

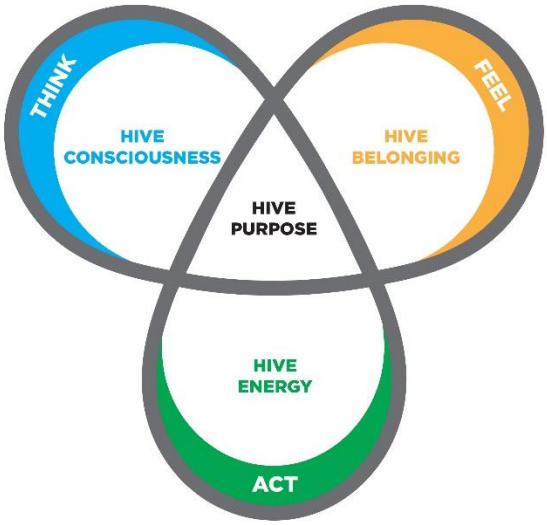

Figure 7 Theoretical model: the 'hive' attributes of a high performing hospital

Hive attributes, as analytic and theoretical concepts, are defined inductively from the data. That is, they were not developed from existing definitions or theories found in the literature. Full definitions are provided in Table 10, below. As with each of the theoretical concepts used within the hive model, attributes are interconnected and therefore some over-lap between concepts is necessary. Their definitions are not operationalised as distinct or discrete categories, rather, it is more useful to view each attribute as having a particular focus that corresponds with other attributes and, importantly, to the model as a whole. The reason for this relates to the development of these constructs from a complexity thinking perspective, which uses a non-linear mode of problem-solving, and recognises the interconnectedness of parts within the whole (Capra & Luisi 2014). As such, the introduction of each concept is not necessarily ordered in the same way that linear models might be – in recognition of the more cyclic nature of the model.

In essence, the hive attributes are cultural qualities that belong to a large and structurally complex social group. Hive purpose relates to a consistent set of values, principles and objectives shared and enacted among group members. Hive purpose is theorised as the central attribute, and each of the other hive attributes might be viewed as an inter-dependent dimension of the overarching hive purpose. Hive energy refers to the identification of individuals with group-level personality traits centred upon motivation, dedication and drive, providing the impetus for shared, coordinated action. Hive consciousness refers to an expanded awareness of the whole group, minimising the effect of 'tribal' identities functioning at sub-group levels. The notion of hive belonging describes a shared sense of togetherness and inclusion, fostered by mutual trust, respect and team-oriented behaviours.

Table 10 The hive attributes and their definitions

Theoretical concept	Definition
Hive Purpose	A consistent set of values, principles and objectives are shared collectively among group members, such that, the decisions and behaviours of individual group members are motivated by and conducted in accordance with the shared values, principles and objectives. The notion of hive purpose has three dimensions: cognitive, affective and behavioural, which correspond to hive consciousness, hive belonging and hive energy, respectively.
Hive Energy	Individuals identify with a sense of shared dedication, drive, and pride as collective personality traits that are characteristic of the group, providing the impetus for coordinated action in fulfilment of the hive purpose.
Hive Consciousness	Individuals transcend traditional sub-group boundaries to possess an expanded awareness, conscious of the interconnections between group roles and structural parts, and an understanding that all decisions at the individual level, or at sub-group levels, have consequences at the level of the whole.
Hive Belonging	The group values the happiness and safety of group members and fosters trusting, mutually respectful and team-oriented behaviours, resulting in a shared sense of togetherness and inclusion.

5.1.1 Hive purpose

> *The only reason the hospital is here is for the patient, that's it, there's no other reason but the patient. (HA03, Consultant Physician)*

The presence of a core purpose, shared collectively among staff, was apparent from the earliest stage of data familiarisation and analysis (see Memo #2 – Appendix I). Data indicated a common tendency for the welfare and wellbeing of the patient to be valued and prioritised

above all else. The centrality of the patient at the core of organisational decision-making, routine processes, and improvement efforts, appears to influence behaviour at all levels of the organisation. For instance, administrators frequently described themselves (and were described by others (HA03, Consultant Physician)) as primarily motivated by what is best for the patient:

> *…the patient is always... the most important person in the decision-making… (HA08, Program Director)*

> *I didn't sense anyone [*from senior management*] obstructing aspirations around improving… they wanted to embrace it. They wanted to find mechanisms to help not to obstruct. Because the assumption that I probably worked under for many years [*employed at a different hospital*] was that administration were up there thinking of ways to obstruct things… [*but*] they're interested in education, they're interested in research and they're certainly interested in the patient experience which I think is pretty key really. (HA10, Program Director)*

Similarly, staff working 'at the coalface' or in middle management described their own work as centrally motivated by patient care:

> *…so long as we've got the patient's interests at heart, that's the bottom line. (HA12, Nurse Unit Manager)*

As one interviewee put it: '…not always, but individuals will put aside their individual zeal, for the patients' best interest' (HA01, Senior Executive), indicating a level of altruism that existed within the organisation. Two interviewees used variants on the phrase 'we're all here for the same reason' to describe a level of dedication to patient care that expresses vocational rather than purely occupational or financial motivations (HA03, Consultant Physician; HA11 Nurse Unit Manager). The phrase 'we're all here for the same reason' puts into words an underlying assumption (which is seemingly obvious to interviewees) that staff come to work primarily to help people, and that decisions, processes and behaviours naturally flow from this core purpose. As one interviewee reflected, the idea that a hospital could operate with a primary purpose other than patient wellbeing seems a little odd; however, this may indeed represent the tacit norm elsewhere:

> *…it seems preposterous from the outside to be thinking there would be doctors on the ward trying not to admit a patient, but that's the unspoken cultural thing, right? You'll be a wall and then you're a good registrar. So, breaking that down has been really important and sort of trying to mentor our registrars and reframe things as – this is not a dump on us from other units, this is not an imposition on us, this is our job, this is what we do well, we look after these really complicated patients well… (HA03, Consultant Physician).*

Further, it is interesting to note that the phrase 'we're all here for the same reason' also indicates a deep awareness and trust in the vocational or altruistic motivations of other staff members and the group as whole. Interviewees described a relatively cohesive organisational culture in which the core purpose of the group (i.e. to help people) could be relied upon as a shared value that is in relative harmony with the purpose of the individual.

This is not to suggest that *all* decisions or actions undertaken by staff within the hospital are *always* altruistically motivated, or indeed that *all* individual staff members share this purpose. In fact, to assert this would go against a key epistemological premise of critical realism which seeks to trace and observe 'demi-regularities' and 'tendencies' as opposed to an assumption of more predictable universal laws (Bhaskar 1978, 1979). For instance, there are examples of particular wards or units within the organisation that appear to be 'better than others' in relation to these values (HA04, Program Director) or suggestions by some interviewees that different groups of health professionals may be more or less motivated by patient outcomes:

> *…if you want nurses to change their behaviour, you have to talk about the impact on their patients. If you want doctors to change their behaviour, you have to tell them that their colleagues want them to change their behaviour… you've got to understand the drivers… (HA15, Senior Executive).*

Member-checking interviews indicated an ongoing tension between three core purposes of the organisation: patient care; training students as the new generation of health professionals; and research. The point was made that, although these three purposes are often in harmony (and patient care is often prioritised first) conflict can arise, requiring dialogue and negotiation (HA01_B, Senior Executive). As such, the hive purpose was described as being actively and frequently used to challenge staff and to provoke discussion and create consensus around actions that might further the hive purpose. In order to enact the hive purpose a level of compromise or discomfort was often required, and so, the hive purpose must be sufficiently strong (and can be strengthened) by prompting difficult conversations and ongoing dialogue (HA01_B, Senior Executive).

Examples of a less cohesive 'hive purpose' were relatively uncommon within the dataset, and often lack the specificity of examples describing a shared purpose. However, they do provide useful insights into the conditions that may be required for a shared purpose to grow or thrive. This is explored in further in Chapters 6 and 7.

5.1.1 Hive energy

Interviewees described a strong sense of collective identity among staff members, embodied by a number of common personality traits and, importantly, enabled through shared action. Descriptive terms such as 'passion', 'pride', a 'willingness' to get involved, 'proactive', 'enthusiastic', 'receptive to change', and even 'arrogant' were used to describe the sorts of people who work at the case site. One interviewee attempted to put into words 'who we are', and to describe the essence of the group's identity:

> *I think we can say that as an organisation - by the nature of who we are, if you speak to other people we're a pretty arrogant, confident, savvy group. That's the group that's attracted to… The Alfred. So we're pretty high performing… by the nature of [*the sorts of people*] who are here. (HA07, Program Director)*

This was supported and extended by other informants at various levels of seniority, and across various professions:

> *…The Alfred has a strong – I would say a strong professional, clinical academic culture. There's this sort of idea… that clinical practice… should be evidence based, that you should involve yourself in clinical research, that you should collect data, that you should evaluate performance. (HA13, Senior Executive)*

> *I think one of the reasons I like to work here is it's willing to change and it's willing to try new things… people are going, 'okay let's give it a go'… I don't need a working party, I don't need a group, I don't need a paper to describe it or anything like that. Let's just get on and do it. If it's about the care and the quality of delivery of care to our patients, let's just do it. (HA12, Nurse Unit Manager)*

Each of these normalised attributes share an inclination towards action. In other words, the culture of the organisation appears to promote the active identification of opportunities or problems, and supports behaviours that pursue excellence through innovation or the resolution of issues and removal of constraints. This bias towards action is summarised in the following excerpt:

> *…I've worked at… two other organisations… there is a different culture here. It is a really fast-paced organisation. We don't sit and wait. We think and we do, we act. We don't tolerate inefficiencies. (HA17, Senior Executive)*

Interviewees described, in quite positive terms, 'work[*ing*] hard for their eight hours' (HA11, Nurse Unit Manager). This might be as simple as attending to a patient's dressing despite it being the scheduled time for a lunchbreak (HA11, Nurse Unit Manager). Or it might be as fundamental as permanently restructuring ward round procedures to ensure that a consultant visits a patient every day, rather than the 'twice per week' status quo (HA03,

Consultant Physician). In the latter example, the interviewee concluded that the key motivation for this change, was the benefit to patients:

> *…So as a consultant, where would you rather work? Somewhere where you have to breeze in twice a week, or somewhere where you have to be there five or seven days a week to see all your patients? Well actually, I would rather be somewhere where I have to be here five or seven days a week… I might have to be here more hours than I would have to be at another hospital, but… as somebody who is ultimately the responsible person, it's like you give more hours but you have less anxiety. The way that we got through people['s]… resistan[ce] to that was to continually reiterate that the reason that we were doing this was for the patient's benefit. (HA03, Consultant Physician)*

> *…we are very committed, and are prepared to put in extra work… because we… believe in what we are doing... I really believe that our focus has always been on 'what's best for our patients'. (HA03, Consultant Physician).*

This example illuminates the connection between hive energy and hive purpose. The passion, willingness and enthusiasm for action shared by staff members appears to operate in close alignment with the high value placed on patient care and patient wellbeing. According to the above excerpt, this relationship is causal: the 'reason' for action is 'patient benefit' (HA03, Consultant Physician). However, it is possible that this relationship is more cyclic and mutually reinforcing. Shared purpose may inspire effort and, in turn: i) efforts to enact the common purpose work to reinforce that purpose; and ii) strengthen the organisational routines (actions) that serve that core purpose. This interconnected and more cyclic interpretation of the evidence is illustrated in the conceptual model presented in Figure 5 (Chapter 3) and explained further within Section 5.1.10 of this chapter.

Finally, as one senior executive stated:

> *…we have thousands of people who love to improve and we know that because they answer that question in the surveys. They are deeply committed to improvement, so that is golden. Do we do enough with it? No, but we're getting better at that. (HA15, Senior Executive)*

This might indicate that although sufficient energy for action exists within the organisation, its enactment is not necessarily straightforward, predictable or guaranteed, and that action may also rely on the presence or absence of other factors. Again, this is examined further in Chapters 6 and 7.

5.1.2 Hive consciousness

Interviewees described an organisation that is structured in parts, but processes information, makes decisions and takes action 'as a whole' (HA04, Program Director). For example:

> *…there was more of a sense of organisation performance as a priority rather than people just hunkering down and worrying about whether… radiology performed… or we were doing good things in the operating theatres. (HA13, Senior Executive)*
>
> *… we make decisions based on what's best for the whole organisation and how do we balance all those levers from a whole of health service perspective rather than the campus perspective. (HA07, Program Director)*

One interviewee (HA07, Program Director) provided an example of the high-level decision-making process faced during the 'peak of winter demand'. Although the immediate logical response might be to open additional beds at the struggling campus, the interviewee described the potential knock-on effects for the whole organisation, and how these potential effects were taken into consideration when forming a response to high demand. Further, a senior executive staff member stated 'we have one mind' when referring to the 'single approach to quality improvement' adopted by the senior executive (HA15, Senior Executive). At a more operational level of the organisation, clinical staff also described decisions and decision-making processes that engender a broad consciousness of the 'whole of hospital' perspective. For example:

> *…we are stepping out and seeing the bigger picture and realising it's not just about [*my ward*] having a nice shift, it's about... ED, they've got people in all the corridors so why can't we go one over if we think it's safe to help them?... everybody is on board when access is bad. (HA11, Nurse Unit Manager)*

Opportunities to understand the position of the 'other', as supported by a transparent flow of information between different parts of the organisation, appear to be a vital ingredient in achieving 'hive consciousness'. After a period of regular attendance at the weekly hospital-wide 'access' meeting,[11] one clinician described 'not [*feeling*] combative at all any more' after '[*senior management*] have let me in', allowing for a greater understanding of why decisions are made and the sorts of pressures that are applied to the hospital network as a whole: 'Rather than striding around the wards thinking "the government should just give us more money right now!" which I still do think… [*I feel*] more realistic, less idealistic' (HA03, Consultant Physician). A second essential ingredient in forming and maintaining a broader consciousness of the organisation as a whole appears to be a sense that decisions or actions

[11] In which all staff members of the organisation are invited to attend high-level discussions in response to fluctuations in patient demand.

taken at the 'micro' level ultimately contribute to and impact upon the 'macro' purpose, and vice versa. As one interviewee reflected:

> *… there needs to be an alignment with what the organisation wants for you and the services and what you want, and frankly what the community want as well… from my point of view, The Alfred's in a sweet spot. So for me there is a line between what I want, what my service wants, what [*senior managers*] and the organisation wants and what the broader community wants so that's a fortunate position to be in. (HA07, Program Director)*

Although there were frequent examples of a broader, organisation-wide consciousness operating within Alfred Health, there were also examples of 'silos' that persisted, or behaviours that did not represent the interests or purpose of the whole. '…Some wards, possibly not as good as others' were identified (HA11, Nurse Unit Manager). In particular, cultures among surgeons and within surgical wards were singled out as having a greater tendency towards insular thinking than other parts of the organisation (HA02, Program Director; HA17 Senior Executive). This was attributed to the surgical theatre environment in which 'you've got the four walls and you're lucky to get outside. You're completely in the pyjamas…' (HA17, Senior Executive). Similarly, the more devolved structure of the hospital network appears to have provided opportunities for some members of the organisation to exercise greater independence that may not be in the interests of the whole, particularly regarding budgets and financial autonomy:

> *I think it's part of our strength and it's also a weakness…we give them a degree of [*financial*] autonomy, but with that autonomy comes responsibility as well because they actually have to do something. I think the weakness is that… we can have a very siloed organisation. (HA16, Senior Executive)*

Beyond the structural, cultural barriers were also identified as affecting the capacity for groups within Alfred Health to share an understanding of each other's role, and their part in contributing to 'the whole'. For instance, one interviewee spoke about being able to predict when a colleague would stop working 'on the floor' and 'go into management' mode, due to the sorts of management 'jargon' that the person would begin to use:

> *…we [*clinical and management staff*] speak different languages, completely different languages, and you can't make a group of people do what you need them to do by using jargon. It's ineffective, you need to tell stories and sort of tap into what's important to them. (HA03, Consultant Physician)*

Again, these few disconfirming examples from the data might point to the sorts of factors or mechanisms that might enable or weaken the capacity for 'hive consciousness' to operate and thrive. This is examined further in Chapters 6 and 7.

5.1.3 Hive belonging

Interviewees described a relatively harmonious and happy workplace, in which staff members appeared to value and cultivate collegiality, mutual trust, and a respectful understanding of 'the other'.[12] When describing these features, interviewees would often draw a comparison between how the organisation functions now, versus how it used to be:

> *It's clearly different now… it's a more collaborative environment from a medical consultant to the bedside nurse. (HA12, Nurse Unit Manager)*

> *…its more team orientated… 20 years ago everyone worked more on their own and just as long as they were doing fine, then that was okay… I educated on the 7th floor for many, many years and… the two sides [*of the floor*] didn't really get on. They just didn't mix much. And now… we all know each other, especially on night duty I know if they have a bad night down there my girls will go down there and make sure they are okay so there is that real support… we are all here for the same reason. And it's really nice and if you've had a few code greys… a lot of nurse managers ringing up saying do you need a coffee, do you need to debrief? Like, 'wow, thank you'. And often you didn't but it was so nice… people just care about you. It wasn't there. That wasn't there [*20 years ago*]. (HA11, Nurse Unit Manager)*

> *…we probably spend more time making sure that our staff are working in a safe and happy environment than a lot of other things… we basically have a zero tolerance for making someone uncomfortable in the workplace. Fifteen years ago that wouldn't have happened at all, so that's been a major shift and it's been positive too. (HA02, Program Director)*

Thus, interviewees expressed a deep sense of belonging and togetherness, which seemed to extend across more traditional 'tribal' barriers between different health professions, departments or units of the organisation, and between managers and clinicians. The experience of feeling 'cared for' (HA11, Nurse Unit Manager) and having a deep trust in others to 'help me' (HA12, Nurse Unit Manager) if and when called upon (or volunteered), seemed to be central to the functioning of cultural belonging.

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[12] 'Happy', 'collegial', 'trust' and 'understand the 'other' and their role' are the titles of prominent codes that emerged during data analysis, and that sit under the 'belonging' parent code. 'Happy' was coded across nine interview sources, a total of 25 times. 'Collegial' was coded across three sources, five times. 'Trust' was coded across 11 sources, 36 times. And 'Understand the 'other' and their role' was coded across seven sources, 25 times.

> *…in this organisation you never feel alone… So if I'm feeling challenged or I feel like I'm in a crisis situation there's always someone I can call on. To be honest, I think I could call on the Chief Operating Officer if I didn't get help from my clinical service director but there's also structures in place… the current managerial structure and the current strategies that are put in place enable me to balance all those demands that I just described before, because I've got confidence that someone will help me…You never feel isolated, you never feel vulnerable… (HA12, Nurse Unit Manager)*

One key explanation for why the more common divisive culture appears to have been subsumed by a more collegial culture, can be traced back to patient care as the focal point for collective motivation, decision and action:

> *... in the traditional hospital everyone was enemies... which is so ridiculous because the only reason the hospital is here is for the patient… And so why would we have to have warring factions trying to look after these patients?... that culture, from what I know and from where I work, doesn't exist at The Alfred. (HA03, Consultant Physician)*

> *…it's seen as a happy place to work where the output of the work is really high quality and I think people feel proud. In the main I think most of us feel proud we work at The Alfred because… we're doing a really good job and we can prove it. (HA02, Program Director)*

As with other 'hive' attributes, the tendency towards collegiality and belonging appears to be strong; however, exceptions do exist:

> *… you'd still find there are a few at The Alfred that probably regard them [*clinicians and managers*] as 'us and them'… I mean they're just constantly redrawing the line where they're arguing from. (HA10, Program Director).*

Reflecting upon the wards that appear to generally 'work well', one interviewee noted that the general medical unit and the stroke unit 'have good respect, and trust in each other, and a collegial way of working' whereas surgical units 'might not be as progressed as some of those other units' (HA04, Program Director). Another interviewee suggested that in order for the more 'intense work environments' to function well (such as intensive care or the emergency department) it is crucial 'that people feel trusting in those environments if they're going to give good service to the patients' (HA14, Senior Executive). Finally, part-time sessional staff, such as visiting medical officers (VMOs) and staff specialists, were noted as a difficult group to engage and a challenge for achieving staff cohesion (HA10, Program Director).[13]

[13] The distinction between these two clinical groups, full-time clinicians and part-time sessional staff, presents substantial challenges to the acute sector in Australia. Full-time employees are often researchers with honorary

5.2 HIVE CYCLES

Thematic analysis highlighted three feedback loop cycles that appeared to be closely connected with the hive attributes and, as such, were important to the organisation's performance and performance improvement capacity. The three feedback loops are titled: the information-action cycle; the discussion-consensus cycle; and the consistency-flexibility cycle (see Figure 8, below).

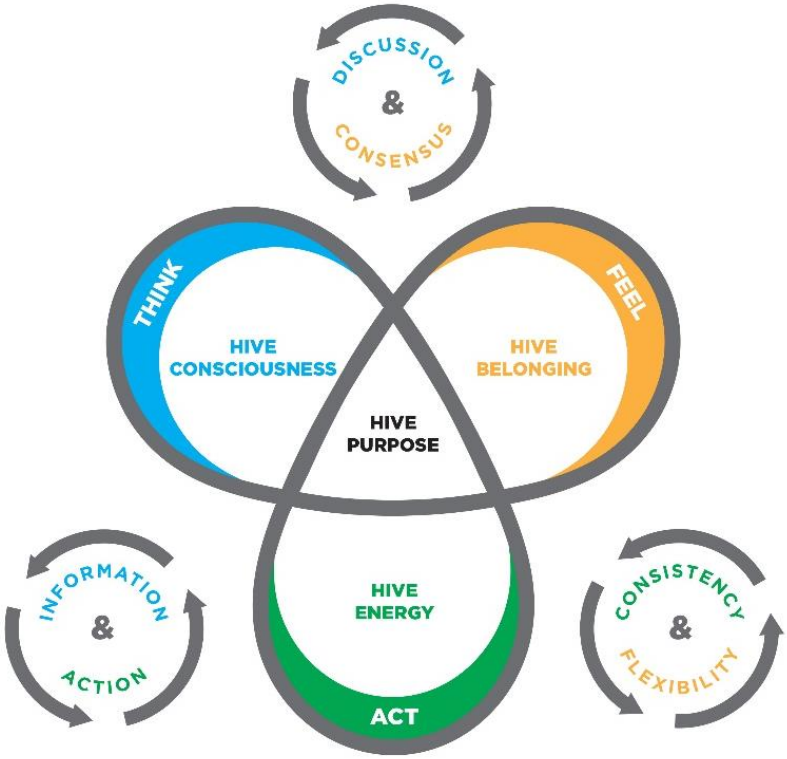

Figure 8 Theoretical model: the 'hive' attributes and feedback cycles of a high performing hospital

'Hive cycles', as analytic and theoretical concepts are, as with the 'hive attributes', defined inductively from the data and are listed in Table 11 (below). The information-action cycle relates to the ongoing pursuit of new information and the use of this information to take

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University appointments alongside their clinical roles. The part-time sessional staff, particularly those who do less than five sessions per week (the equivalent of 2.5 days), are also committed to an external private clinical practice. The latter group typically are not researchers and have less time or opportunity to engage in hospital improvement activities, and may have an inherent resistance to change. This duality is colloquially known as the 'town-gown divide', referring to a cultural and social division between those clinicians who 'don' the academic robe and those who do not. In the mid-1990s it is likely that Alfred Health operated with a very high proportion of sessional clinical staff, and although there are indications that the number and proportion of full-time clinical staff employed has increased over the period of study, challenges persist.

action towards the continued improvement of the hospital network's performance. This is essentially a learning mechanism, promoting continuous improvement through ongoing improvement routines. The discussion-consensus cycle relates to the exchange of authority, flowing back and forth between 'higher' and 'lower' hierarchical levels of the organisation, depending upon the level at which the best information for decision-making is available, and the level at which actions must be taken following a decision. This feedback loop represents a democratisation of decision-making, ensuring that in most cases, organisational decisions are reached through consensus rather than imposed 'top down'. Finally, the consistency-flexibility cycle relates to the balance between the use of standardised procedures and the capacity for individuals to vary from standard practices, in circumstances in which those procedures no longer adequately represent the 'hive purpose'.

Table 11 The 'hive cycles': information-action, discussion-consensus, consistency-flexibility

Theoretical concept	Definition
Information-action cycle	A two-part cyclic routine reliant upon a core value for education and continuous learning, in which new information is routinely sought out and then acted upon, in the pursuit of the continuous improvement of group performance towards shared objectives.
Discussion-consensus cycle	A two-part process in which decision-making authority is purposively exchanged to different groups or levels of the organisation, depending upon the level at which the best information for decision-making is available, and the level at which actions must be taken following a decision. The second part of the process relates to an underlying principle of egalitarianism, in which decisions are reached via consensus, recognising the equally valuable contribution of all group members.
Consistency-flexibility cycle	A two-part cyclic routine in which individual group members continue to make assessments as to whether to adopt the uniform procedural standards of the group, or to vary from those standards, depending upon the degree to which procedures continue to be aligned with group principles and objectives under varying conditions and circumstances.

The following section describes the operation of the hive cycles, as illustrated by key excerpts from the data. The relationship between hive attributes and hive cycles is explored further within Chapters 6 and 7.

5.1.4 Information-action cycle

As introduced above, the information-action cycle operates as a mechanism for organisational learning and continuous improvement. The cycle incorporates an information-gathering routine, and uses this information to act towards improvement. As with each of the feedback loop cycles, the information-action cycle describes both a routine and an underlying attitude that appears to function at a more tacit level within the culture of the organisation. The interaction between these two elements is illustrated in the following excerpt:

> *…we now have quite robust reports and measures, reporting mechanisms and feedback loops, so… collecting the data, assimilating the information, and then feeding it back to people and expecting them to do something with it other than just saying 'oh, yes'… we are increasingly improving the way we use data. (HA01, Senior Manager)*

In this example, data collection, data analysis and data presentation comprise the process-oriented routine, that is also supported by an attitudinal expectation (known by others) that the information drawn from this routine will be acted upon, for improved outcomes. The level of data 'transparency' (i.e. the degree to which data are shared throughout the entire organisation) appears to be a key facilitator to the process. This is also perhaps an important enabler for the creation of hive consciousness, in which staff members share an understanding of the organisation as a whole. Similarly, fostering a sense of 'accountability' is cited as an important contributing factor for 'closing the loop' to ensure that information and knowledge is translated to action. Again, delving a little deeper, this could be viewed as an aspect of hive purpose.

> *So there's again transparency in data and then some accountability in terms of reporting systems around that. So I think that's how the organisation has matured over the years. We've watched what Queensland has done around scorecards and dashboards and that's okay. The big part is then, what do you do with the data and how do you close the loop. (HA05, Senior Executive)*

Information-action cycles are routinised through formal structures such as committees, exception procedures for dealing with incidents or errors, and through the publication of performance data. Formal governance structures operate at each level of the organisation, and may act to reinforce the attitudinal as well as the behavioural:

> *…down at the coalface, every area in the hospital has its own group meetings… every section has to have a mortality and morbidity meeting once a month… our hits and*

> *misses… on top of that we audit all of the deaths that happened in the hospital… there's a whole lot of flags that highlight even though it looks like an absolutely normal death we make sure there's nothing sneaky about it, that people are hiding... (HA02, Program Director)*
>
> *We keep the information going by having a theatre reference group which tells us what's happening on the ground where we may have a spike, something going out of control, we can pick it up and we can discuss it, see what we can do about it and bring it back in. So that's 'getting the troops'… involved in the process and running the process. (HA09, Program Director)*

'Getting the troops involved' in the information-action cycle process appears to be an important factor in 'closing the gap' between knowledge and action. Again, this speaks to the link between transparency and establishing a broader consciousness of the organisation as a whole; and further, the link between accountability and the establishment of a shared purpose. The intersection between formal and informal, structure and motivation is well described in the following excerpt, which describes the day-to-day application of the information-action cycle, and the way that this cycle appears to have embedded within technical (formal) routines and the cultural (motivational) aspects of the organisation:

> *We get a report every morning. Every nurse manager gets on the computer and can tell what sort of night the hospital has had. It tells you know how many admission beds are ready to be open and for some it will be a zero and you think oh god, today is going to be a hard day, because we have already started with no beds, rather than often sometimes 20 something beds. So, it gives you a real visual and then I make sure I tell… the person in charge: 'the hospital has been really busy overnight, this has happened, this has happened, so we really need to get early discharges so we need to get them to transit land'. (HA11, Nurse Unit Manager)*

The information-action cycle appears to go beyond traditional notions of how research and data might be applied to the improvement of clinical services; rather, it extends to other dimensions of hospital activity. For instance, Alfred Health appears to actively use the results from staff satisfaction surveys to continue to improve the organisational environment:

> *…[*the survey*] is dissected in detail… we go through the process of going back to [*each*] group and saying here's the results we got for the whole of the organisation. Here's how that compares to last year. Here's… how you as a group answered in comparison to the rest of the organisation. Here's the things which you thought were really good about working in your team. Here's the things which were crap about working in your team. Let's have a conversation about how we could do it better… there is a process in place which says here's how we measure the fuzzy things and here's how we expect the management of the organisation to actually address those in a practical and realistic sense. (HA14, Senior Executive).*

Similarly, one interviewee used the example of a leadership development program to speak about the importance of moving beyond learning as an exercise in information-gathering.

Rather: 'real investment in learning' involves 'bring[*ing*] it back in… and applying it… when you slump down, you… redesign [*it*], you get together again and you think, what on earth is going on and then just mix it up again' (HA05, Senior Executive). Additionally, another Senior Executive spoke about the importance of following up a few months after an OH&S incident had occurred, to check 'how's that whole person going?' (HA15, Executive Manager). This provides evidence of the tacit attitudinal aspect of the information-action cycle. That is, a cognitive pattern appears to exist, in which staff continually seek out ways to 'close the loop' between information that may be relevant to the organisation's improvement and the organisation's active response to that information.

It is useful to note that member-checking interviews somewhat problematised the value of data, by observing that data may become a point of discord and dispute between staff members or departments (HA17_B, Senior Executive). The accuracy of data is easily discounted by staff, and in this way, data is of little value if its use is not adequately aligned to the hive purpose. The use of stories and insights from patient experience (qualitative data) were observed to be just as important as traditional quantitative data sources for decision-making (HA17_B, Senior Executive).

5.1.5 Discussion-consensus cycle

Similar to the information-action cycle, the discussion-consensus cycle functions as a core organisational routine, operating at various different strata of the organisation and across all levels, macro (i.e. organisation-wide) through to micro (i.e. clinical decisions relating to a single patient). Again, it appears as though the functioning of the routine is contingent upon an underlying tacit attitude shared among staff members: in this case, an attitude of egalitarianism.

The discussion component of the cycle relates to the flow of decision-making authority, exchanging between 'higher' and 'lower' hierarchical or professional levels. This exchange of authority appears to be dependent upon the level at which the best information for decision-making is available, and the area of the hospital network (or area of professional expertise) that is responsible for implementing changes following a decision. In other words, where the best knowledge and capacity for action exists, decision-making authority will be pinpointed and provided, although often within certain scope boundaries. Managers described this process as a deliberate strategy of engagement:

> *Change is simple to talk about, hard to implement and the only way you can implement it is to get buy-in by the people you are asking to do the change and you get buy-in by first of all saying 'this is the direction we want to go do you agree with it?', 'yes we agree with it', well okay, how do you keep it going? You keep it going by saying 'we want you to be involved in initiating modifications to this which make it better'. (HA09, Program Director).*

> *The more opportunity I had to go out and talk to other groups of nurses who are basically cynical, the more opportunity I guess I had to hone my skills on how am I going to convince this person because I want them to come along and see my way… [*this experience*] taught me a lot about how to engage people and how to bring them along with you rather than expecting well I'm putting out a decree and that's the way it's going to happen. (HA08, Program Director)*

This was also supported by observations from clinicians working 'at the coalface':

> *…they just have this roll out of endless meetings where they had facilitators and drew pictures and I was involved in lots of behind the scene meetings first as a registrar representative with my big opinions, then as a consultant. And I think what they did really well was to make sure that all of the ground staff felt that they had an opportunity to be heard… (HA03, Consultant Physician).*

The importance of opportunities for 'ground staff' to feel genuinely 'heard' and to discuss fears and anxieties was raised as a strong thread throughout several interviews (HA03 Consultant Physician; HA07 Program Director; HA12 Nurse Unit Manager). Further, the need to anchor discussions to patient care, as the core purpose for these discussions, was highlighted as crucial to the success of the process:

> *… you've got to introduce the pathway… and then work on it. Have people from the coalface saying, 'that's a great part, but this doesn't work because of this and you can modify it'. So… you bring it back to a common goal which is consistency and management of the patients… (HA09, Program Director)*

Pinpointing discussions to the level at which action for improvement is required (whether in discrete areas or at the whole-of-hospital level), paves the way for a consensus approach. 'Consensus' appears not to be an inherent or inevitable part of 'discussion', however. For instance, it would be possible to assemble a group together for discussion but then disregard the ideas, issues or fears that were raised, in favour of a decision arrived at by one individual in a position of authority. In contrast, data indicate that decisions are routinely reached through a consensus process rather than imposed 'top down'. It was suggested that this consensus mechanism ensured ownership of key decisions throughout the organisation (HA17, Senior Management).

Choosing to adopt consensus as a decision-making mechanism appears to be linked to a broader organisational commitment to egalitarian principles:

> *…it's just that we don't think a cleaner is any less important than the chief. In fact, that's true I mean if he didn't clean my office, it would be a tip. And we do infection control and all that stuff is terribly important these days. (HA02, Program Director)*

> *…from the CEO, from the chief operating officer, from my clinical service director there is genuine interest in what our role is, what our challenges are, how we do our job, what they can help us with, how we contribute to the organisation, how their contribution can help us. So… rather than a top down it's more of a collaboration. (HA12, Nurse Unit Manager)*

The discussion-consensus routine was found to operate at various levels of the organisation, spanning whole-of-hospital, or more discrete or specialist areas. Discussions that relate to overarching hospital strategy seemed to be initiated by managers at 'higher' levels of seniority rather than staff at 'lower' levels (HA03, Consultant Physician; HA11, Nurse Unit Manager):

> *…the important thing is you get an idea. You discuss the idea and thrash it around at sort of the upper echelons and you take it down to the coalface and discuss it with the guys at the coalface. Modify it to how you think you're going to introduce it and then you introduce it and you've got to get feedback from the coalface. (HA09, Program Director)*

Senior managers named these ideas 'exec strategies' (HA05, Senior Executive) and clinicians tended to regard them positively (HA03, Consultant Physician; HA12, Nurse Unit Manager). It seems the origin of the discussion was less important to staff members than alignment with the common purpose and the highly collaborative approach. Interestingly, however, the inspiration for some of these executive strategies may have first originated from staff or patient experience surveys (HA14, Senior Executive); or alternatively, as one interviewee described 'the power comes down to the masses' through a process by which Program Directors regularly report or present directly to the hospital board, and thus, the board may instruct the CEO to 'make this happen'.

Interviewees described similar discussion-consensus feedback loops in routine use at 'lower' levels of the organisation. Examples tended to relate to more discrete areas, problems or opportunities, and thus, were largely contained at the 'lower level', unless higher authority or action was required. For instance, in the following example, members from various seniorities and professional groups were invited to participate as active and equally valuable partners in routine conversations relating to patient care:

> *…we do involve everybody on the ward… where[*as*] it used to be just nursing do this, medical do that… we discuss it. And you know there's an expectation that nurses go on the ward rounds. Not the nurse manager or the person in charge, but the bedside nurses. They know more about the patient than I do. I can be there just to [*answer

> questions*]… about the big things that I need to clear up. But they're the ones that can say well he's actually had several lots of diarrhoea this morning. Where I wouldn't know that. And that's really relevant to the patient. And often the patient won't mention it [*to a doctor*]. (HA11, Nurse Unit Manager)*

Further, nurses within the same ward were described as confident in their capacity to respectfully challenge clinical decisions being made by doctors, demonstrating the routine use of discussion and consensus cycles:

> *…I hear my nurses do [*it*] to the medical staff, and not in a rude way, in a real positive, '…is that the best decision for the patient?' and then they'll have a great discussion and often it is the right decision but at least the nurse now is 100% satisfied it's the right thing for the patient as well. (HA11, Nurse Unit Manager)*

Member-checking interviews provided an additional dimension to this example, suggesting that it may be more socially permissible for nurses to challenge doctors through discussion and consensus, than it is for doctors to challenge nurses using the same mechanism:

> *… [*this example relates to*] a nurse challenging a doctor. If the doctor had challenged the nurse back, there would have been quite a different response. So the hierarchy's inverted in some of these places. So it's okay for the nurse to challenge the doctor because the doctor has a comfort of seniority and strength in their clinical and other training. For the doctor to do it to the nurse, they have to be much more sophisticated in how they challenge… because the nurse would generally react in a way that's less confident. So the challenge becomes much more significant.' (HA01_B, Senior Executive)*

The balance between 'top down' hierarchy and mechanisms for more 'bottom up' influence and agency was frequently raised. A small number of instances in which large-scale, organisation-wide improvements had been initiated from a grassroots level using something resembling the discussion-consensus mechanism, were noted during member-checking interviews. This includes the 'bottom up' development of a LGBTIQ diversity policy for the organisation, and the initiation of a TedX Talk series (HA15_B, Senior Executive). It was observed that, although the organisation provided support to these initiatives, there appeared to be some level of discomfort from the executive level about the lack of control over these initiatives (HA15_B, Senior Executive).

Although interviewees regarded the reduction in hierarchical control mechanisms as highly positive and crucial to improvement, some more senior managers believed 'it is too top down right now, so we've got to shake it up' (HA15, Senior Executive) or suggested that more could be done to 'encourage feedback from the bottom' (HA09, Program Director). In contrast, an interviewee at the 'coalface' believed that efforts to 'stop hierarchical

[*structures*]' had 'stopped too much' and a balance was necessary, ensuring that 'strong leaders' retained their role to assist 'when things go wrong' (HA11, Nurse Unit Manager).

5.1.6 Consistency-flexibility cycle

> *…we want to have stability… That's the ultimate goal, to have stability but nevertheless you do have to introduce a change at some time and move it forward. Advance a change forward. (HA09, Program Director)*

The consistency-flexibility cycle relates to the continual balance between group behaviour that is coordinated and standardised, and individual or group behaviour that breaks from the standard in order to better align with the core purpose of the group. In order to support this balance, the data suggest the importance of individual group members continuing to monitor the value of standardised routines, and further, to ensure that they have the freedom to pursue an alternate pathway if that alternative is able to address the shared purpose more effectively.

Standardised rules and routines (for instance, models of care, patient journeys or process-level protocols) appear to be highly valued by the organisation for their capacity to: coordinate individual and group efforts; minimise variation in the quality of their efforts; provide efficiencies; or otherwise ensure that patients or staff members benefit from a smoother experience:

> *…we create within that little rules around - the patient needs a diagnostic examination and it is asked for before lunch, so they have it that day, and if they ask for it after lunch they have to have it before lunch the next day. None of this faffing about with this 'I need to have an MRI' and then I get it next Thursday, forget it, you know, it's a waste of somebody's time and effort, either you need it now, or you don't… so there's the whole feedback loop, expectations and feedback, expectations and feedback… (HA01, Senior Executive)*

Ensuring that staff members understand their role, what they are responsible for, and how they are expected to meet those responsibilities is featured within the data as an important enabler to the smooth coordination of activities and processes. One interviewee commented: '…there are pretty clear expectations of what executive want from the wards in terms of how they run, how they interact… what their outcomes are…' (HA04, Program Director). This, in turn, is contingent upon the effectiveness of communication channels and their continued maintenance and use, and the degree to which enactment of the standardised routines is feasible within resource or other constraints (HA02, Program Director).

Alongside the value of standardised routines and processes, interviewees, particularly those 'at the coalface', also described the value of questioning and challenging these routines if they were not found to support the organisation's core purpose – patient care:

> *…if we have a patient [*with*]… a disability that has a [*full time*] carer, sometimes wards are so strict now, you can't stay overnight. But it's about, hey, stop. Have a read of the guideline first, so you are clear on what you can and can't offer and then make sure 'is this what's best for the patient?' (HA11, Nurse Unit Manager)*

Further, one interviewee gave the example of a 25-year-old patient admitted with a migraine, who had not showered within the standard timeframe:

> *Rather than 'Okay, I've got time now come on, let's go, its shower time'… [*there is a*] whole dynamic of just considering what the patient would like. And thinking about 'alright she has been in hospital for 48 hours and she's had this headache 10/10 pretty much for the whole time, why am I going to force her to get up for a shower?' If she wants to, great. But if she doesn't, she's 25, let her sleep. Who cares? (HA11, Nurse Unit Manager)*

The same interviewee went on to describe the culture ten to 15 years prior, in which nurses were made to 'feel bad' if they had reached shift handover by 1 o'clock and 'you haven't done your washes… like my god!' (HA11, Nurse Unit Manager). In the intervening years, it seems a cultural shift had occurred in which nurses began to trust that their colleagues' judgement of 'what the patient would like' and 'what is best for the patient' is more important than habitually following a rule or standard, simply for the sake of it. This indicates the presence of mutual trust and respect, and again, a dedication above all else, to patient care as the common organisational purpose. Support for the efforts of individuals or groups to use their own judgement and agency to innovate or improve upon standards appear to be highly valued by senior management. For example:

> *…if we can show better outcomes then we get those programs resourced… Any program that we come up with to improve our treatment of any particular problem… the management's approach is, 'Tell us what you need to make the situation for these patients better, and we will do our best to give you what you need.' (HA03, Consultant Physician)*

> *…a few years ago he [*my supervisor, a senior executive*] said to me, after… we'd fixed some things that were wrong, he said, 'now I want you to work in the system in whatever way you think's needed'… That's a good job. Yes, and my job with him is to also to challenge him and also make sure he's connected to the place… he's fantastic to work for because he is completely driven by improvement, completely. (HA15, Senior Executive)*

In order to facilitate the balance between individual agency and standardisation (particularly for larger or higher risk deviations in protocol), the organisation relies upon various committees and working group structures. In particular, these structures provide a vehicle for (re)standardising practices, through the assessment of suggested modifications to existing standards, alternatives to current standards, or the proposal of an entirely new process or practice altogether. For instance, drawing on the example of the patient who required a full-time carer with them during their hospital stay (introduced above), the interviewee explained that 'there were enough incidents' to indicate that 'there is a problem', which triggered the formation of a working group with membership 'at all different levels' in order to review and modify the standard practice (HA11, Nurse Unit Manager).

Another interviewee described the end-to-end change management process, which involved: lodging a change management request (with details of the problem to be addressed, the solution, implementation and potential impact on other processes or professions); a review by the change management group with broad representation across management and clinical profession; and finally, a vote. If agreement is reached, the new process 'becomes enshrined in the law of the land', thus preventing 'one doctor saying 'I want [*this process*] done this way' and the next one comes in and says they want it done a different way and the [*technical administrator*] in the middle has to know… [*everyone's preferences*] and it's not always obvious (HA02, Program Director).

It is perhaps worthwhile noting that the existence of individual agency within organisations is not unusual or unique. Individuals can choose or not to comply or participate in an organisational initiative if they wish. For instance, one senior clinician remarked:

> *…if these guys had have sat up here and written up what we had to do and then handed it to us on a bit of paper nobody would have done anything. (HA03, Consultant Physician).*

Another spoke of the capacity for staff, individually or collectively, to control the pace of their work, despite management decree or demand:

> *…there are 90 [*technical specialists*] in this place and they can work as hard or as slowly as they like basically… if they want to work hard they do a great job but if you get them all depressed… they don't want to work. (HA02, Program Director)*

The positive balance between individual agency and standardisation observed within the case site appears to hinge upon a shared value for patient care as the core purpose of the group. As described by one interviewee, this balance requires continual re-evaluation and renewal:

> *…it's hard to have a one size fits all, so we've put it out there that we want everyone to have a journey board meeting, everyone to have a ward round, everyone to have some consistency around their quality planning, everyone to have – you know integrate the whole team. But… whereas we need to have consistency, we also need to have a degree of flexibility around what we expect as well, because not every ward is run in the same way. A surgical ward, and a medical ward, a psych ward… will be run slightly differently… because there are idiosyncrasies around the patient groups... And so… now we are at that point where we are trying to work out:… what are the things we have to have happening on every ward? What are the things that we can be flexible on? (HA04, Program Director)*

5.3 HIVE INTERACTIONS WITH THE ENVIRONMENT

Thematic analysis highlighted two further categories of routines and cycles that were important to the organisation's performance and performance improvement capacity. These categories tended to correspond with senior management decision-making rather than decision-making at 'lower levels' of the organisation. The first category relates to how the organisation tended to respond to external opportunities, and the second category relates to how the organisation tended to respond to externally imposed constraints (see Figure 9, below).

As with 'hive attributes' and 'hive cycles' the analytic and theoretical concepts were defined inductively from the data and they are listed in Table 12 (below). The 'opportunity-scouting' cycle relates to the active exploration of new opportunities to learn from the external environment, and subsequent reinterpretation of new knowledge to fit the culture and practices of the local group. The 'growth routine' refers to the active pursuit of opportunities to exploit the environment for group advantage. The 'threat-insulation cycle' refers to a routine in which environmental constraints are 'insulated' from the group as a whole, and again, reinterpreted and localised, prior to their exposure to the group. The advocacy routine refers to the active pursuit of opportunities to shape the environment so that external constraints and threats are reduced, or their impact upon the group is minimised.

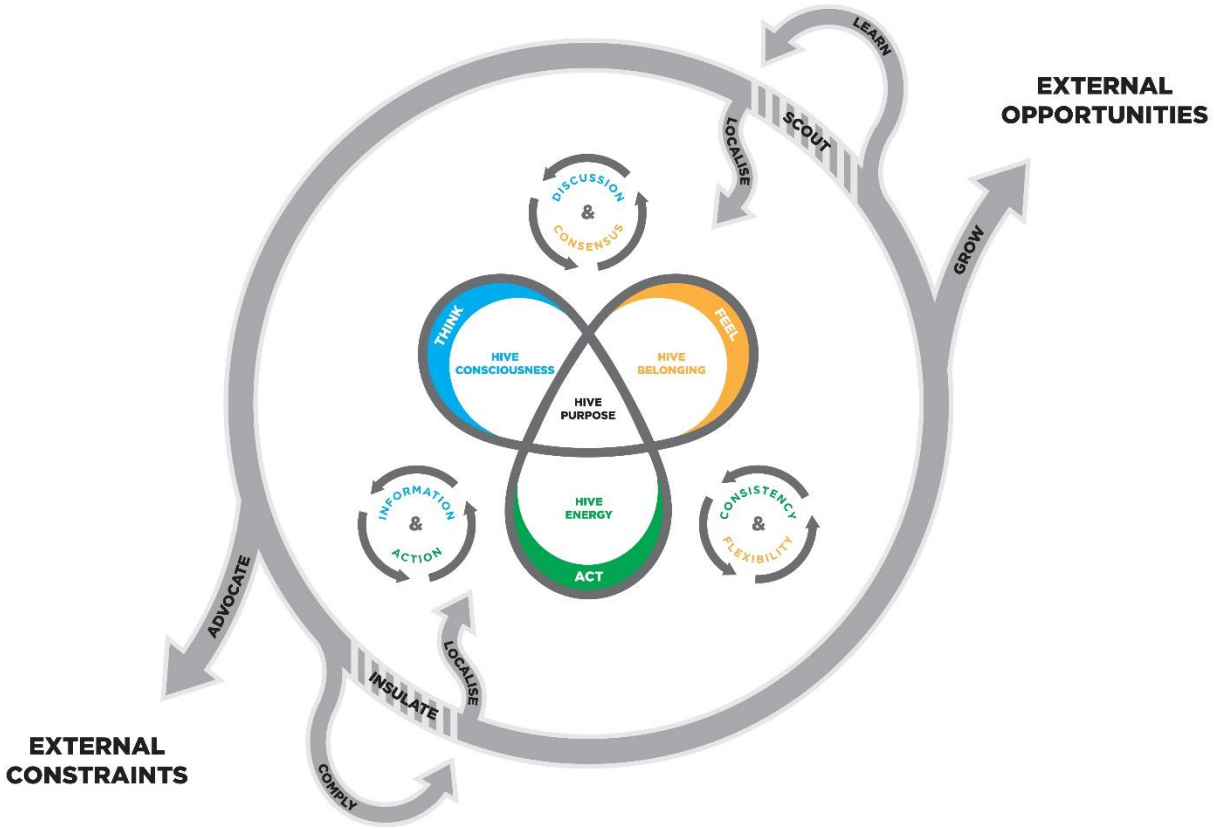

Figure 9 Theoretical model: the 'hive' attributes, feedback cycles, and management routines of a high performing hospital

Table 12 The 'hive' management cycles in response to the external environment

Theoretical concept	Definition
Opportunity-scouting cycle	A routine in which group leaders (or their delegates) actively explore new opportunities to learn from the external environment in order to improve the functioning and performance of the group. The application of external knowledge to the group is facilitated by a process of reinterpreting and localising the new knowledge to ensure that it is suited to the existing culture and practices of the group.
Growth routine	A routine in which group leaders actively pursue and exploit opportunities available within the external environment for the group to grow and prosper.
Threat-insulation cycle	A routine which involves group leaders assessing and filtering external constraints and threats in order to cushion their direct effects upon the group as a whole. This is enabled through the reinterpretation of environmental constraints in order to increase their relevance to the local culture prior to their application to the group.
Advocacy routine	A routine in which group leaders actively seek to shape and reduce the threats and constraints applied by the external environment, in order to increase the capacity for the group to prosper.

The following section describes the operation of the hive management routines, as illustrated by key excerpts from the data.

5.1.7 External opportunities

Interviewees described having a strong awareness of the external environment, including where direct opportunities for performance advantage may exist, as well as opportunities to learn from peer organisations. Interviewees also described several examples in which Alfred Health was the first among its local peers to introduce a new service or strategy, clinical process or technology (HA02, Program Director; HA08, Program Director; HA13, Senior Executive). This may indicate that the strive for improvement and the mechanism for learning, had been well-developed routines for some time. The theoretical concepts introduced herein: the 'opportunity-scouting cycle' and 'growth routine', are depicted within Figure 10, below:

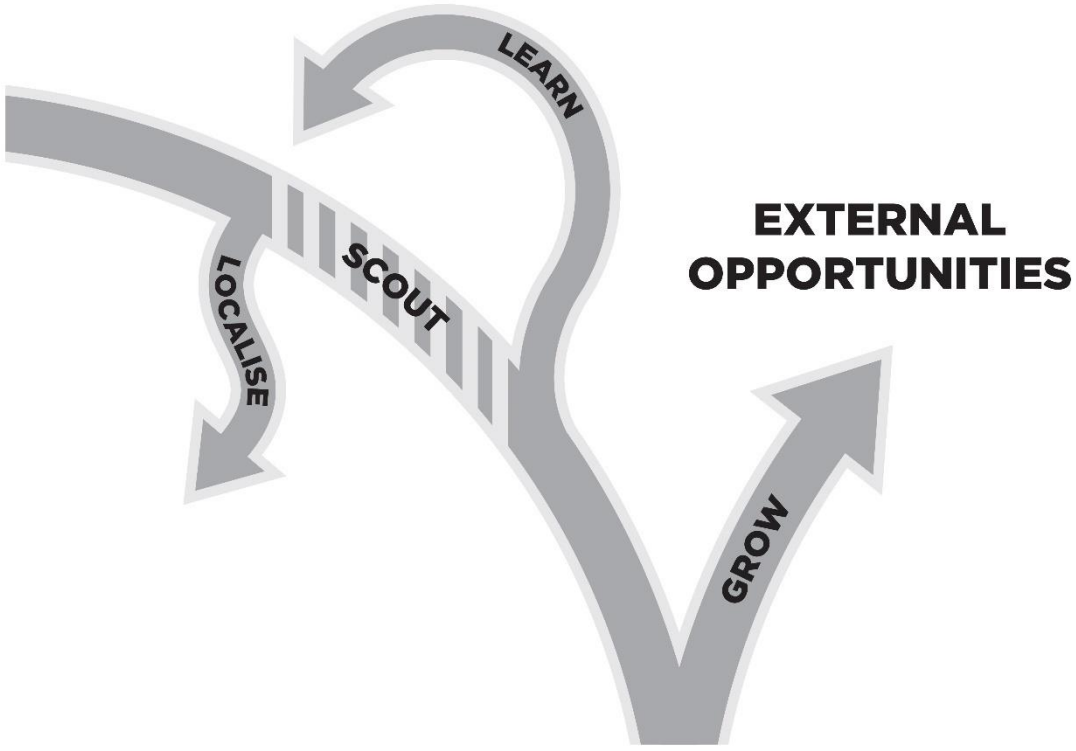

Figure 10 The opportunity-scouting cycle of the hive model

Opportunity-scouting cycle

The opportunity-scouting cycle involves a two-part routine. First, senior management actively encourage and support key staff members to search or 'scout' for learning opportunities from the external environment. This may involve visits to other high performing hospitals in order to then return to the organisation with insights that could be applied locally for performance improvement. For example:

> *…when you start to have the slump it's, 'So get in there'… 'what are other people doing?', 'what's out there?' and the one thing in this organisation, there's a real investment in looking outside and [*our senior management*] really expects all of us to look outside which, for someone like me, initially I was so busy looking down and around. [Senior management]… really expects leaders to go out there… [*to*] look at the exemplars and… bring it back. (HA05, Senior Executive)*

Interviewees spoke about their experiences learning from high performing hospitals in the US, UK and Europe:

> *…we went across to Sweden, the UK, we went to Gunderson Health and we went to Virginia Mason… here's organisations who were top five, top 10 in the US…. [*Virgina Mason*] talked strategy… at a very local level, you could see the [*patient journey*] dash]boards weren't pretty. They were handwritten a lot of them but they [*the staff*] really understood what to do with issues or initiatives and… it seemed to be in their culture that everybody had an investment around quality improvement… it was in their way of working and we walked into a staffroom and this manager who was with us, she said, 'who wants to talk to us about their PDSA?', I kid you not there were six… nurses in the room and they just turned and they went 'okay I'll tell you mine' but it was language that they all had. We just thought, yeah if we did that here, they would be like 'what?' So… it was the way of working. (HA05, Senior Executive).*

Another interviewee described her visit to an overseas high performing hospital as 'life changing', recalling the encouragement and mentorship that she received from those leaders whom she had connected with (HA08, Program Director).

The second part of the opportunity-scouting cycle involves applying the new information or innovation to the organisation in a way that is most likely to be of benefit. In particular, interviewees described a process of synthesis, by which lessons or innovations brought in from the external environment, were modified and tailored to match the local organisational context and culture. For example:

> *…we know that there's other people out there doing really innovative things and we don't think for one minute we'll just go and adopt that, but we'll go and have a look at it, change it and improve it and make it better. So, you know, that's something that's very much in our culture as well around benchmarking and understanding what other places are doing and how we can… not reinvent the wheel but learn from that*

> *and make it even better… so that would happen in anything we do. (HA17, Senior Executive).*
>
> *…I mean [*'lean thinking' and 'productive ward'*] was an aspect of it… they didn't pick it up and use it holus bolus, but… we certainly had people who were trained in the methodology, and I mean it would be interesting to know, the ones who were [*trained*] and the wards that [*weren't*]… are they operating now any differently? I don't know. (HA04, Program Director)*

Describing this delicate balance between learning and localising, another Senior Executive suggested that in order for uptake to occur, the 'right conditions' must also be in place:

> *Yep, so you can't do it until there are other conditions and the conditions exist now, they didn't exist five years ago, they didn't exist two years ago. So people travelling along the same journey, getting to the same point, trusting one another and then deciding, yep, this one matters. (HA15, Senior Executive)*

The identified 'conditions' align fairly closely with the theoretical 'hive attributes' introduced in Section 5.1 of this chapter. For instance: 'travelling along the same journey' (hive energy); 'getting to the same point' (hive purpose); 'trusting one another' (hive belonging), 'and then deciding [*as a group*]' (organisation consciousness); 'this one matters [*to the hive purpose*]'. The same interviewee spoke about the difficulty getting some clinical groups to appreciate the sorts of lessons that could be learned from industries outside health care. This suggests that boundaries to the capacity for learning *did* exist:

> *… nurse education needs a big shake up and getting them to visit non-hospitals is such a challenge for them because they just don't see - they haven't seen it yet. I mean they will, but they haven't seen it yet. (HA15, Senior Executive)*

Another interviewee spoke about a sort of 'adoption by stealth' approach, in which it may not be necessary for the clinical area to be aware of the origin of the innovation, model or idea in order for it to be of use (HA05, Senior Executive). Presumably, this may depend on how effectively the foreign intervention is understood by those who tailor and localise it to the new environment.

Growth routine

The growth routine refers to the continued efforts of administrators to seek external opportunities for growth and performance improvement. The strong history of fundraising within the case site is a good example of the 'growth routine' in action. The organisation appeared to have pursued fundraising as a primary growth strategy (as opposed to a more minor strategy) well before peer organisations, which provides evidence of Alfred Health

'leading the field' in pursuit of performance advantage. For example, at a time when strategies for public engagement and fundraising were still fairly rudimentary (in the mid-1990s), the organisation began paying very close attention to its public reputation, public engagement and fund-raising strategies. Indeed, this was a key instruction handed to senior managers from the hospital board (HA13, Senior Executive). As one senior executive commented:

> *Another element of performance is how effective you are at raising donor money… the government's got to spread the taxpayer's dollar over a hundred hospitals across the state… whereas a donor coming in can give… more impetus to either a particular piece of research, or a particular bit of equipment, or a new service that… helps to focus the health service's attention… and… enable it to happen more quickly than if you just wait for the government to get around to it… (HA13, Senior Executive)*

The interviewee explained that the benefits of fund-raising go beyond the direct monetary gain. As suggested, the pursuit of donations helped to clarify strategic direction, fund service specialisation and differentiation, and helped to develop a sense of organisational cohesion and loyalty. 'Making sure that there was a good story to tell [*the community*] about… the quality of your clinical performance and the excellence of your clinical services' was also described as an organisational survival mechanism (HA13, Senior Executive). These observations were supported by other interviewees, who suggested that the active management of reputation constitutes an important facet of hospital strategy (HA07 Program Director; HA10 Program Director; HA17 Senior Executive).

Other opportunities for growth include the careful balancing of income regulation and activity streams. For example:

> *…so the way the Victorian system works is that when you perform over your target, you get 50% of what you're funded, right. So we may look at things where we haven't been able to accommodate those growth bids, but if we think we can do them at a cost that's 50% or less than the funding, the full funding, we may well do those as well. So this is very growth-oriented - because there's been so much pressure on growth here, so we have had a lot of growth… we try to fund as much growth as we can. And it's even to the extent of funding above target growth. But we're very mindful of the cost. (HA16, Senior Executive)*

The very active pursuit of capital and infrastructure investment is another good example of the organisational growth routine, and again, this is strongly linked to perceptions of 'survival' (HA13, Senior Executive; HA14, Senior Executive). This was a strong finding from the historical 30-year analysis of Alfred Health's annual reports, and is also supported by interview data:

> *…the hospital's emergency areas, its main ward block, its main theatres, its main pathology, are dilapidated, old, they're 50 years old, they're too small, they don't meet contemporary standards of quality and safety and efficiency. And yet… there is huge reliance on those facilities to deliver the most complicated care in the state… performance will deteriorate if those things aren't addressed and it will deteriorate both in terms of access and quality and safety. So, that investment, which we can't control, except to say that we can make the case and put forward… sensible and intelligent proposals… has to be a top priority for the organisation. (HA14, Senior Executive).*

An interesting exception to the growth routine was also highlighted, which involved an active decision to reduce rather than expand a clinical service on the basis of patient safety. As recalled by one of the interviews, the CEO had expressed 'losing sleep' over emergency clinical services for high acuity maternity care patients, which the hospital network was not well-placed to serve due to the poor availability of specialist expertise and infrastructure (HA08, Program Director). To resolve this, Alfred Health forged a partnership with another public hospital (with the right profile of specialist maternity services) in order to create a transition pathway for those patients whose maternity care requires escalation. The interviewee emphasised:

> *…it was not about money. This was about what was best for the patients and we were having terrible difficulty… because it [*our maternity service*] was a low acuity service… if they got into trouble we had a great deal of difficulty moving them on to other tertiary services because they'd say 'Well, why can't The Alfred do that?' (HA08, Program Director).*

It was noted that a solution like this was 'quite unique for this country' (HA08, Program Director), given that this sort of macro-level service planning is usually managed at a state department rather than organisational level. Additionally, the decision to 'hand over' services to another hospital would affect revenue and is contrary to the competitive spirit characteristic of the case site (HA02, Program Director; HA08, Program Director; HA10, Program Director; HA13 Senior Executive; HA14, Senior Executive) and other peer hospitals. This is another useful illustration of how patient care and welfare (the organisation's 'hive purpose') appears to be prioritised over all else.

5.1.8 External constraints

Senior executive interviewees were acutely aware of the variety of constraints and threats imposed upon the organisation by external forces. The most prominent of external forces appeared to originate from either increased patient demand for services or, importantly,

government regulations, funding models, targets and monitoring mechanisms. Workforce turnover and supply, unions and industrial action, and other scandals or rapid changes that characterise environmental turbulence were also featured within the data. The theoretical concepts introduced herein: the 'threat-insulation cycle' and 'advocacy routine', are depicted within Figure 11, below:

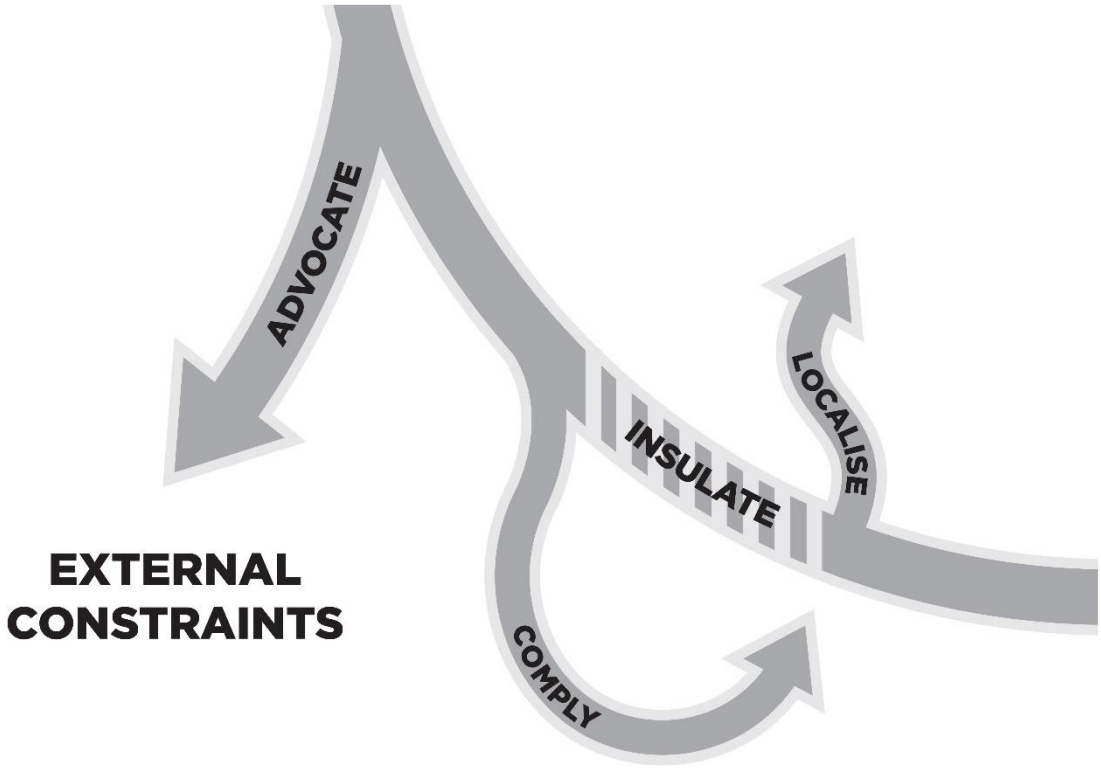

Figure 11 The threat-insulation cycle of the hive model

Threat-insulation cycle

The threat-insulation cycle refers to a management routine in which external constraints and threats are filtered by leaders before being exposed to the group as a whole. The purpose of this is to cushion ('insulate') or otherwise modify the effects of the threat upon the group. This appears to be a deliberate and overt management strategy, as described by senior executives:

> *…[*our recent whole of hospital improvement program*] came from a dialogue about not imposing government targets from outside. (HA01, Senior Executive)*

The threat-insulation routine is enabled by a careful reinterpretation of environmental threats or constraints in order to modify or articulate them in ways that are more relevant to the local culture prior to their application to the group. For instance, the below data excerpt describes the work undertaken to re-emphasise a set of government-imposed performance targets so that they better align with the shared purpose and values of the group:

> *…we don't describe access as a government target, ever. It's described as quality care, so when we talk to clinical groups about the four hour ED target, you know the NEAT target as it is expressed nationally, we're all about 'what is best for patients?', 'what is the right thing for patients?', 'is languishing in the trolley in the ED 24 hours really the best care, because if it is, that is what we should do. But persuade me that it is the best form of care to be languishing on a trolley for 24 hours.' As yet nobody has tried to do that. And you replicate that conversation in all the things we do. (HA01, Senior Executive).*

This was further supported by clinicians working at the coalface:

> *…that whole thing about top down – it really – it wasn't – there was no use any of us arguing against a government rule because that was what's going to happen. And what we [*as a hospital*] had to do was say, 'What do you need to make this possible to do?' And so for instance in general medicine we had to restructure our whole junior staffing so that we had adequate – because it's no good saying, 'The government says we have to do this' and one registrar has to admit 20 patients in five minutes, that is not going to work… [*and so*] we said, 'This is what we need'… everyone had a chance to… [*say*] what they thought they would need in order to be able to fulfil the organisation's new requirements handed down from the government. (HA03, Consultant Physician)*

There were several examples from the data that suggest a highly involved process of reinterpretation, potentially requiring substantial structural changes within the organisation, or the development of a program of works with objectives that extend well beyond those imposed by the external environment. One interviewee spoke about 'being the first health service nationally' to go through a new hospital accreditation process (HA05, Senior Executive). With little guidance as to how to approach the task, the case site discovered that their internal structures would need to change, and, emphasising shared responsibility and ownership they 'brainstormed' at the executive level, made changes to their committee structure, assigned executive sponsors to various roles or areas, and then 'pulled it down to the level of the wards' with a clear communication and engagement strategy (HA05, Senior Executive). This demonstrates a response that goes far beyond the sorts of minor or surface changes (often described as 'paying lip service' to instructions from a more senior level of authority) that are characteristic of the public health care industry.

A key achievement of these initiatives appears to be a broad sense of group 'ownership' over the purpose, content and process of these improvement efforts. This appears to have protected against a somewhat defeatist or rebellious attitude, described by one interviewee as 'a siege mentality', noting that management staff had worked hard to avoid this (HA07, Program Director).

> *…the new target was 90 percent, and then the next year, well the new target's 92… So we said… this is the target we're going to have to aim for eventually, let's just bypass the next five years of incremental change and let's just do something big and bold now. I think, like I said, being the nature of the organisation we are, the sort of people that it attracts, the academic focus, the desire to be… a leader of the pack, all those, it sort of tickled all those parts of our body that said, oh yeah, we're interested in that. So, it didn't take too much effort for people to get on board with, 'let's be pretty dramatic in what we do'. (HA07, Program Director)*

One interviewee even spoke in positive terms about the fluctuations and vicissitudes of government targets and regulations, commenting that 'it kind of keeps it fresh… Otherwise it [*routine targets or regulations*] just becomes white noise… [*the change*] was a great driver for this organisation' (HA05, Senior Executive). Consistent with this, there were also examples within the data, in which the organisation pre-empted a government requirement, thus choosing to apply the government requirement at a time most suited to the needs of the organisation. For example: '…we just did an audit on ourselves… There's a tool that the Department had developed and we knew they were going to tell us to do it soon so we did it anyway…' (HA15, Senior Executive).

Finally, the process of annual strategic planning is a useful example of the fine balance between organisational agency and the need to comply with external constraints. As described by one Senior Executive, there appears to be an iterative process of 'matching' between government priorities and priorities identified 'bottom-up'. Senior-management would appear to be the 'match-maker', negotiating between the two:

> *…goal number one in the strategic plan says: we shall provide person centred care of a high quality to everybody who walks through the door in one way or another… each of those groups [*programs across the organisation*] has to say 'well what are you going to do to deliver on that in terms… of improvement planning across the coming year?' So, everybody's got to have a plan and, you know, there's probably somewhere in the vicinity of 350 deliverables within that across all of those. And then, on an annual basis about 20 of those end up in what's called a 'statement of priorities' and the statement of priorities is an agreement between The Alfred and the government of Victoria… (HA14, Senior Executive)*

> *…Government says 'here's our 20 most important things'. We sort of say 'oh well, here's our 40, there's their 20, let's sort of match those up', send it back to government and say you – 'what do you think about that?'… So, there's a bit of an iterative process that goes back and forth, and in the end, you sign the statement of priorities which says here's the 20 things which are most important. And so essentially, they become the KPIs for the year for the CEO of the hospital and the board. (HA14, Senior Executive)*

The '20 KPIs' negotiated with government were said to be a strong driver for improvement, with a higher likelihood of achieving 'the 20 things' than other priorities, due to their correspondingly higher level of public and regulatory accountability (HA14, Senior Executive).

Advocacy routine

The advocacy routine refers to the efforts of leaders to shape or otherwise reduce the threats and constraints applied by the external environment in order to increase the capacity for the organisation to perform and survive. Similar to the 'growth routine', detailed earlier, reputation management was also highlighted as an important part of the advocacy routine. The difference between reputation management for growth or advocacy is subtle and, ultimately, the two are highly interconnected. For the purpose of differentiation, however, the latter refers to a more defensive positioning for survival, rather than active opportunism for growth:

> *I was very passionate about benchmarking performance against peers and, you know, making sure that there was a good story to tell about the… quality of your clinical performance and the excellence of your clinical services all of which makes it – just makes you less vulnerable to a notion that you, The Alfred, can be dispensed with. (HA13, Senior Executive)*

Chapter 6 highlights a time within the organisation's history in which organisational 'survival' was a prominent fixation due to a highly turbulent external environment during the 1990s. There are also many examples from the documentary data analysis in which board members and senior leaders of the organisation engaged in very active government lobbying activities, going so far as to publicly criticise resource and funding models being considered or introduced at a federal or state government level.

A more contemporary example of advocacy relates to the organisation's response to 'blanket' resource restrictions that governments have applied to the entire health jurisdiction, irrespective of the peculiarities or different service profiles between hospitals within that jurisdiction, or sound data to demonstrate a growing need. In response to government restrictions, leaders of the organisation have continued to advocate for 'more ICU beds' in

response to rising patient demand, or for a more discriminate approach to the restriction of 'complexity coding', where justified by the data. As one interviewee commented:

> *We have been pleading with the department for funding for more beds and they have not provided that. They don't believe we need it based on some data that they've got that… we know is incorrect. And so, we're going back to them with our data in an effort to try and give them some context around what is the acuity of our ICU and the complexity of our patients … if you think about performance from an ICU perspective I would say absolutely… our performance has been hugely affected by finance and we know that we have patients out on the ward that probably should be in ICU. In any other organisation they'd be an ICU patient.… So, the health service gets forced into clearly caring for the patients which we'll always do and then… as a service director or [*in*] my role you kind of get beaten around for being over budget and then… the department don't believe your data… (HA17, Senior Executive)*

The same interviewee spoke about this type of stand-off between the organisation and the government department as 'soul-destroying' due to the flow-on effect to both 'patient care, patient outcomes, and patient experience' and to clinicians at the coalface whose higher sick leave and staff turnover statistics are reflective of the increasing strain on resources (HA17, Senior Executive). Despite this, and in the context of continued knock-backs from government, the organisation appears to continue to engage in advocacy behaviours in order to shape the environment for better outcomes.

5.4 THE HIVE MODEL

Explanatory Proposition 1A: The Hive Model for High Performance

Between the late 1980s and late 2010s Alfred Health developed a set of hive-like characteristics and, evidence would suggest, these characteristics strongly contributed to the organisation's capacity for high performance and sustained performance improvement.

As argued here, it is possible to draw a (theoretical) causal association between Alfred Health's hive-like characteristics and the organisation's capacity for sustained high performance. As this is an historical and explanatory case study drawing on qualitative evidence, rather than a prospective experimental design drawing on quantitative evidence, it is not possible (or desired) to establish this causal link in the same way that a positivist researcher might. This does not, however, render the association fruitless. Indeed, Alfred

Health's record of high performance and performance improvement has been established (see Appendix C), and the qualitative empirical evidence that supports the theorised causal link between performance and the hive-like factors, is considerable. The hive model derives from a synthesis of 19 interviews, in which interviewees were asked to reflect on the factors that led to Alfred Health's performance trajectory (notwithstanding the limitations of this method – as described in Chapter 9). And further, as the research is more ecological (in the sense that it draws on the full available span of potential factors that contributed to the outcome)[14] there is perhaps less risk that hidden or unaccounted for variables or factors might better explain the results.

Staying true to the critical realist outlook however (Easton 2010, p. 124), the causal link drawn here remains: case-specific; perhaps as theoretical as empirical in nature; and without question, imperfect. Importantly, drawing a causal relationship between a set of factors and an outcome (as Explanatory Proposition 1A attempts to do), is not the same as explaining the causal mechanisms that might underlie that relationship, which is the ultimate aim of this research. This latter task is the subject of Chapters 6 and 7.

This final section of Chapter 5 discusses the hive model in relation to notions of metaphor and model, touching on a number of the potential gifts and pitfalls of theoretical abstraction. This, in turn, helps to provide a more overarching consideration of the hive model as a whole, as opposed to descriptions of the model's parts.

5.1.9 Hive as metaphor

Contrary to popular belief, the queen bee does not rule the hive. Honeybees, like many bee, wasp, termite and ant species (alongside some crustaceans, and one rather odd species of mammal known as the naked mole rat), share certain characteristics of social organisation that classify them as 'eusocial' (Nowak, Tarnita & Wilson 2010). Characteristics of eusociality include the division of labour between those who reproduce and those who work. Eusocial groups work collectively among overlapping generations of adults (mother and adult offspring) to secure a safe nest, rear young, forage and store food (Nowak, Tarnita & Wilson 2010). In eusocial societies the interests of individuals are surrendered to the interests of the

[14] Drawing deductively from existing theory and empirical evidence, and inductively from the specific findings of case study research.

group, resulting in a highly cooperative and collaborative organisation of efforts towards a common purpose.

Interestingly, biologists have studied a number of democratic, group-level decision-making mechanisms of various eusocial species, which refutes the notion of authoritative, hierarchical rule by a single queen (Seeley 2010). Rather than rule, the queen breeds, ensuring the long-term survival of the group, while workers ensure the immediate survival of the group. But, without a centralised point of authority, how do workers form important strategic decisions like, for instance, the relocation of a hive in the summer? According to the research findings of prominent biologist, Prof Thomas D. Seely (2010), honeybees, for example, achieve this by hosting an open, democratic contest of potential nest-site options, and, following debate, reaching a consensus decision.[15]

How then, does an understanding of eusociality contribute to our understanding of hospital performance? Many scholars have remained sceptical as to the value of 'figurative' or 'poetic metaphor' (Lakoff 1993), considering these vehicles for cross-contextual, cross-domain extrapolation an artistic hinderance rather than offering a valuable service to science (Levine 1995). As pointed out by various (largely positivist) scholars, metaphors may have a tendency towards over-simplification, and they may introduce confirmation-biases as a researcher becomes overly caught up in the poetic beauty of explanation to the detriment of a more measured consideration of all available data. On the other hand, metaphors may be useful in their capacity to efficiently illuminate an object of observation, to provide a new perspective with which to view a phenomenon, or to aid in the communication and extension of an idea or theory. The longevity of this debate (from Aristotle (Lakoff 1993) to Weber (Levine 1995) to more contemporary scholars (Cornelissen et al. 2008)) might indicate an inherent resistance to its resolution. Rather, what seems to be more important than whether or not to use a metaphor, is the *way* in which metaphor is used. In other words, to what

[15] Honeybee hives will do this by: first swarming (moving as a group from the hive); a small number of self-elected mature workers will scout for new nest sites, and then they will return to the swarm to present their findings via dance. At this point the debate begins. An open and fair competition between each of the alternative nest site options is held, and, based upon the pool of information brought to the group, a consensus is reached. Typically, consensus results after some level of conflict between prominent nest site options; however, rarely does conflict cripple the group's capacity for action, and the final consensus decision almost always represents the best available option (Seeley 2010).

degree is the metaphor used to illuminate or obscure? Without researcher reflexivity, metaphor risks the latter.

Here, the biomimetic metaphor of the eusocial hive is offered as a point of poetic illumination – a way in which Alfred Health's particular patterns of decision-making and social relating can be considered in the context of other variations from the social norm (eusocial configurations of power). There are, indeed, similarities between the two. For instance, both share the capacity for group members to lay down their own individual interests in order to work towards a collectively shared purpose. To achieve this, there seems to exist the presence of a strong sense of group belonging, a sense that group members (implicitly or explicitly) understand the relationship of an individual part as contributing to the functioning of the whole, and the capacity to galvanise a highly coordinated program of action towards a common goal. Furthermore, feedback loops employed by Alfred Health are reminiscent of the ways in which eusocial insects can act with agency to gather information, distribute it to the group, and form consensus decisions to serve the broader interests of the group (see Footnote 15).

However, this is not to suggest that Alfred Health *is* a hive, or that all aspects of the organisation are equivalent to that of existing eusocial societies. Indeed, in contrast to others in the animal kingdom, human societies place great emphasis on meaning through principles of ethics, values and beliefs. In turn, meaning can be captured, cultivated, challenged and changed through the use of language, symbols and rituals. Further, meaning may be shared or not shared within the group, and embodied in action or not, as a function of individual choice and agency. For example, during the member-checking interview process in which preliminary results were presented to key interviewees, one Senior Executive pointed to the limitation of the hive metaphor as implying an overly homogenous way of working, where there are inevitable and persistent cases of individualism:

> *…based on what you've found, describing it as a hive, I can see how that analogy works. What it doesn't do is describe the need for the maverick because… you need someone who is going to buck the system. They'll be painful, they are painful, I've got two or three of them in the organisation at any one time. They go off and do their own thing and don't tell you about it. They drop you in the soup with people externally because they're so driven for their… micro piece of the organisation… they really don't care about the rest, but they're thriving for their bit. So there's something about the hive… [*metaphor as*] very homogenous. I think part of the success of The Alfred is being able to cope with those mavericks and bring them back into the mould without completely*

> *crushing them… or the system. So I think that would be my one comment.* (HA01_B, Senior Executive)

The human capacity for agency provides a more volatile set of factors with which a group of humans may negotiate eusocial ways of working. In contrast, honeybees know no other way of working – they have no other instinctual or social pattern of relating other than eusociality; and their pathway to eusociality may have looked quite different to that of Alfred Health.

The hive metaphor is, therefore, imperfect. Its purpose within this thesis is not to narrow the conceptual domain to a prescription of like-for-like eusociality and conclude the matter there; rather, the role of metaphor here is to open and illuminate discussions on how Alfred Health was able to cultivate an arguably unusual pattern of group-level coordination and collaboration for the common good.

5.1.10 Hive as model

Having grasped the value and limitations of metaphor, it is also worthwhile touching on the role of *model* within the research process. As described in Chapter 2, a model offers a descriptive simplification and representation of a phenomenon or some aspect of phenomena (Frankfort-Nachmias & Nachmias 1996; Stjernfelt 2000). Models do not necessarily strive to represent reality with perfect accuracy (Nilsen 2015, p. 2). Rather, somewhat like metaphors, they are able to draw on artistic and design principles to communicate something (that is otherwise quite complex) with the potency and economy of visual expression. Importantly, a good model is as synthetic as analytic. Whereas, by definition, analysis requires the breaking down of a whole into separate component parts, synthesis is the reconstitution of separated elements to form a new whole (Blatt & Stein 1959).

'The hive model' (Figure 12) provides a visual representation of research findings presented within this chapter. The model is descriptive, in the sense that it identifies the prominent cultural factors and cyclic routines that, interview evidence suggests, constitute Alfred Health's capacity for sustained performance improvement. However, this description goes beyond the analytic and the categorical. Rather, the model uses certain design principles to illustrate an ecosystem of deeply interconnected cycles of attitude and behaviour (Stjernfelt 2000).

As an indication of its principal importance, hive purpose is placed at the centre of the model around which three ancillary attributes circulate – hive energy, hive consciousness, and hive belonging. These latter three hive attributes are, in essence, attitudinal with either an inclination towards behavioural, cognitive or affective dimensions. For example, hive energy describes a group-level bias towards action for problem-solving (behavioural); hive consciousness describes an intellectual expansion, in which group members share an understanding of how the local fits within the organisational (cognitive); and hive belonging relates to an experience of togetherness, in which the individual feels part of something bigger than themselves (affective). Hive purpose is conceptualised as the moral core, acting to glue the behavioural, cognitive and affective dimensions together through the cultivation of a sense of shared meaning between group members.

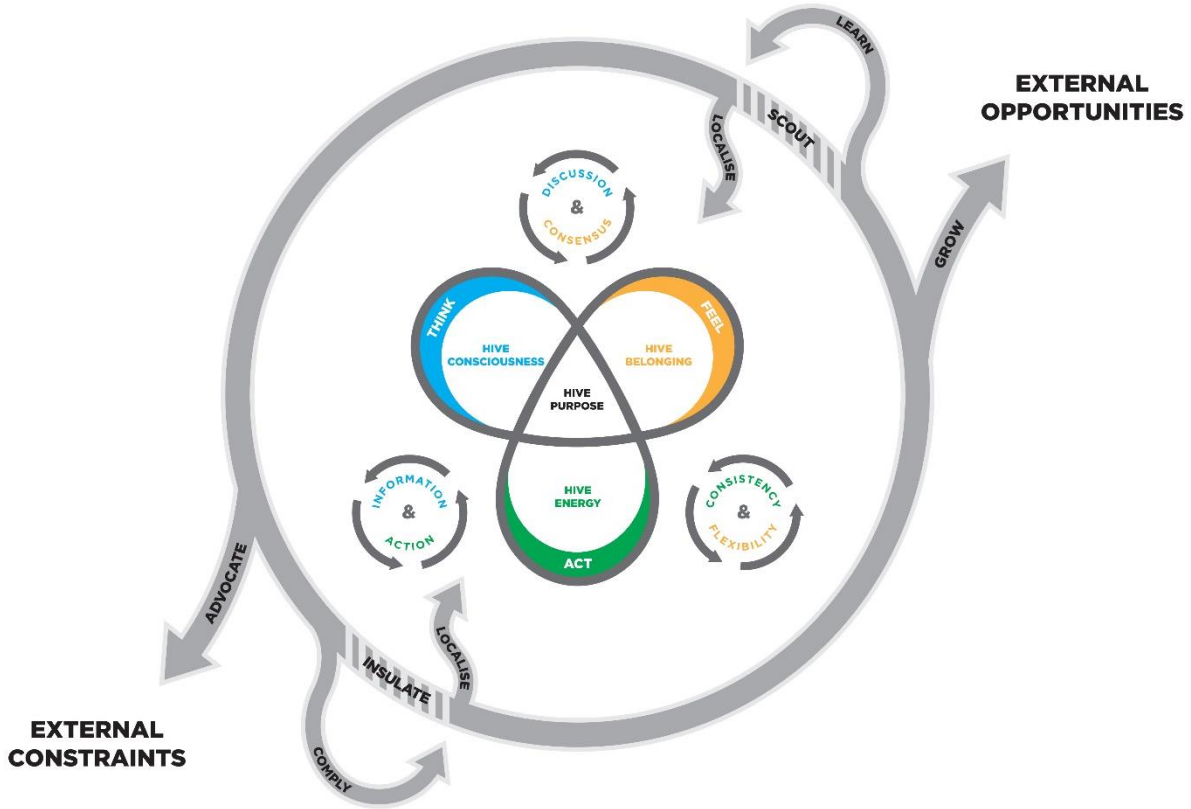

Figure 12 The hive model

The overlapping elliptical form in which these factors are arranged is a little like the convergence of categories within a Venn diagram or a Borromean knot, providing a visual description of the way in which the hive attributes function, via the hive purpose, as

connected and mutually sustaining factors. In other words, the hive attributes are a *set* of attributes that, together, form the basis for improvement. The presence of one or two of these hive attributes, without their corresponding counterparts, would arguably compromise efforts for improvement. As suggested here, the absence of hive purpose might undermine the capacity for improvement altogether. This is because, a little like a M.C. Escher artwork or a Celtic knot design, the model depicts the hive attributes as belonging to a cyclic form that has no discernible beginning and no end. Thus, there is continual flow and exchange between each of the component hive attributes.

The model depicts the hive cycles as situated one radial layer out from the hive attributes. Hive cycles are conceptualised as the behavioural embodiments of the hive attributes. The use of colour within the model highlights the association between each hive cycle and certain attitudinal aspects that correspond with hive attributes. For instance, the 'information' component of the information-action cycle relates to the cognitive aspect of hive consciousness (coloured in blue), whereas the 'action' component relates to the attitudinal bias towards action, inherent within hive energy (coloured in green). In this way, the hive cycles represent the point at which certain group-level attitudes are enacted as group-level behaviours. It is essential to remember that each of these routines and mechanisms are acting and interacting in constant flux.

As touched on above, member-checking interviews also raised some important considerations regarding the interaction between components of the cycles. For instance, too much emphasis on data and information may erode the local engagement necessary in order to successfully act on and implement any data-driven improvements (HA15_B, Senior Executive). A focus on information without adequately engaging a discussion-consensus process might lead to implementation failure; or there may also be risks in the reverse scenario. If discussion is not adequately grounded in data it may lead to poor consensus decisions, or no consensus at all, as there may be little objective that can be agreed, and upon which a collective decision can be developed.

At the outer-most radial layer of the model, a semi-permeable boundary identifies the meeting point between the internal workings of the organisation and the external environment. Management routines help the organisation respond to external opportunities (via growing and scouting) and external constraints (via advocating and insulating), which provide the basis for an ongoing exchange between the internal and external contexts of the

organisation. Importantly, the model depicts all inputs from the environment as passing through a filtering process in which leaders actively modify inputs, making them suitable for more localised application.

Of course, it is important to remember that the hive model is essentially a conceptual abstraction from the data; and the theoretical description provided above, is just that – it is limited by the natural constraints of theory – simplicity. The hive model does not represent a singular truth in which all observable attitudes and behaviours adhere to the model in law-like fashion. Rather, the model outlines observed *tendencies*, or in critical realist terms, *demi-regularities*. Where data have indicated conflicting accounts or points of tension within the model, every effort has been made to highlight these within the chapter content.

In many ways, the hive model can be viewed as addressing the question: when Alfred Health works well, how does it work? In other words, there are times in which the organisation does not work so well, and there may also be some parts of the organisation that may work better than others. However, as indicated by Alfred Health's performance trajectory (see Appendix C), most of the organisation appears to get it right a lot of the time.

5.5 CONCLUSION

The first research question asks: what were the factors and contextual conditions that gave rise to Alfred Health's high performance and sustained performance improvement? This chapter partially addresses this question by presenting an examination of the sorts of prominent *factors* that appear to have been associated with Alfred Health's performance success. These factors are presented as a set of shared values and attitudes (hive attributes) and cultural routines (hive cycles and management cycles) for improvement, broadly represented by the 'hive model'.

Interestingly, these hive-like attributes appear to function as both the active agents *for* improvement and the achievements *of* improvement. That is, the hive model might feasibly address the question of how Alfred Health both improved its performance trajectory over time, and how the organisation is able to sustain and maintain this level of high performance. As argued in latter sections of this chapter, it is important to remember that the hive model remains an abstraction and simplification from the empirical data, and is limited in that regard. The hive model does not describe reality as such, but appears to offer an imperfect yet useful description of the way in which Alfred Health seems to function, in

instances in which the organisation functions well. This may not describe *every* instance, and does not necessarily safeguard the organisation against a set of new conditions or changes, either internal or external to the organisation.

As per the first research question, the *conditions* that are associated with the organisation's performance outcomes are examined in detail in Chapter 6. Further, the possible causal mechanisms that led to the development of Alfred Health's capacity for performance improvement are examined in Chapter 7.

6 HISTORY OF HIVE ATTRIBUTES: A COALESCENCE OF CONDITIONS AND FACTORS

> *Any particular event that we might wish to explain stands at the end of a long and complicated causal history. We might imagine a world where causal histories are short and simple; but in the world as we know it, the only question is whether they are infinite or merely enormous.*
>
> *David Lewis (1986, p. 214)*

This chapter explores the role of key events and their sequence in time, and how events, actions and contextual conditions appear to have influenced the capacity for high performance and sustained performance improvement at Alfred Health. Whereas the analysis presented in Chapter 5 was largely limited to a static point in time (i.e. it reflected the contemporary cultural attributes and cyclic routines as observed at the time of data collection) this chapter takes a more historical view in order to chart the evolution of the organisation, and the changing nature of improvement capacities from the late 1980s to the late 2010s.

The chapter is broadly structured in four parts. The first three parts correspond with three relatively distinct periods of organisational evolution: roughly, the 1990s; the 2000s; and the 2010s. Each (approximate) decade coincides with a set of fairly distinct changes that occurred within the broader environment, and additionally, these periods of time correspond with crucial changes in leadership, organisational structure, and improvement strategy during this timeframe. In particular, the chapter draws a relationship between contextual conditions and key developments that took place, principally in relation to the development of the hive attributes and hive cycles. The fourth part of the chapter touches on a set of slower shifts that took place during the thirty-year period, for instance, demographic changes.

It is worthwhile briefly noting that the analysis upon which the content of this chapter rests, integrates both interview and documentary data (see also Appendices F, G, H).

6.1 SURVIVING THE 1990S: KEY DEVELOPMENTS FROM 1989 TO 1997

6.1.1 Summary of key events

The imposition of NPM-type reforms had a substantial impact upon Alfred Health from the late 1980s, as evidenced by commentary within the organisation's annual reports. An increasing number of efficiency audits were performed by the Auditor-General in Victoria, including numerous audits at the case site in the 1989/90 financial year. In annual reports, the organisation cited having received legal advice suggesting that these audits were outside the scope and extent of the Auditor-General's power, and also made the suggestion that the underlying intent of the audits appeared to be as much for media attention as parliamentary consideration. This indicates a level of hostility towards the sorts of government measures and interventions that were being placed upon the organisation. However, as Alfred Health was frequently in financial deficit during these years, and was found to be 'one of the least efficient teaching hospitals in Victoria' in the early 1990s, this level of government scrutiny is perhaps unsurprising.

The Victorian Government Brand Inquiry, conducted in the early 1990s, proposed a number of recommendations for health system rationalisations. Consistent with this, the early to mid-1990s were characterised by a series of major cuts to recurrent hospital funding and the introduction of mandated bed:population ratios, which led to a large number of hospital bed closures throughout Victoria. The case site reported these rationalisation measures as an increasing trend, year-on-year, during and up until around 1996, although the precise dates are difficult to establish due to poor data from 1995-1999. Within these five years, 1995-1999, a major state-wide reorganisation of acute health services took place, which introduced large-scale mergers of up to ten or so hospitals under far broader hospital administrative 'networks'.[16]

Prince Henry's Hospital was permanently closed in September 1991, with uncertainty as to whether the 266 beds lost would be replaced by other hospitals. The closure of Prince Henry's appeared to have had a large impact upon Alfred Health (and, it is likely, other peer-

[16] During these years, 1995-1999, annual reports were written at the greater 'network' rather than hospital level, leading to very poor availability of documentary information specific to the case site. For the purpose of this research, where possible, absent annual report data has been supplemented with data accessed from staff newsletters published during these years.

organisations), perhaps signalling the genuine possibility of organisational death within the context of increasing rationalisation. The Liberal Kennett Government was elected in October 1992, defeating the then-Labor Kirner Government. Soon after, a radical hospital reform was introduced – transitioning from historical funding allocations to casemix funding in 1993 to 1994. Further, a set of new urgent and semi-urgent elective surgery targets were introduced during these two years, consistent with increased scrutiny on the efficiency of hospital services.

Roughly coinciding with the establishment of hospital network structures in 1995, the Metropolitan Hospital Planning Board released a report that recommended the potential closure of The Alfred Hospital (among a number of hospitals 'on the chopping board') in order to relocate acute care resources to a population growth corridor in the far eastern suburbs of Melbourne. This threat of closure loomed over the organisation for roughly two years as the Department of Health and the Planning Board finalised strategic deliberations. The proposal was eventually dismissed and the organisation survived this near-death experience; however, the impact of the threat had a lasting effect on the organisation (as discussed in detail in Section 6.1.3). A number of coronial inquests were also held during this time, highlighting a number of potentially avoidable deaths at Alfred Health. The inquests received substantial media attention, further unsettling the organisation.

The internal environment during the late 1980s to approximately 1997 was, perhaps unsurprisingly, characterised by a series of strategic or structural responses to the changing demands and threats imposed by the external environment. Various efforts to restructure the organisation took place from 1989 to 1994, with a particular emphasis on the partial devolution of hierarchical structures, thus placing more responsibility at the level of departmental units rather than dependence upon centralised control.[17] This was in support of a more commercial approach to the management of hospital operations, as described within annual reports.

As a redress to identified organisational deficiencies (and in keeping with the broader movements of NPM) hospital administrators at the case site introduced a series of new

[17] The notion of organisational structural 'devolution' can be found within annual reports from as early as 1989.

systems for financial planning and control. They also commenced a series of initiatives that aimed to increase productivity and efficiency, and began investing in the collection and analysis of data for the purpose of performance improvement – thus sparking the routine use of the information-action cycle. For example: a pre-admission and post-discharge planning project commenced in 1991; a coordination of care initiative was piloted in 1992; and a discharge brokerage service was trialled in 1993. A major top-down push for the organisation to adopt patient-centred care practices took place from 1993 to around 1995. Interestingly, this pre-dates the publication of The Quality in Australia Health Care Study (Wilson et al. 1995), which exposed a higher than expected number of hospital admissions associated with adverse events, and began to raise serious concerns about the safety of hospitals in Australia. The case site was awarded full (three-year) accreditation in 1994.

6.1.2 Key developments: performance

Of the sixteen interview respondents, only seven had worked at, or had been in close proximity to, the case site in the 1990s. Therefore, only a small group were able to reflect upon key changes or developments during this period, and interestingly, impressions and reflections were not always consistent among these interviewees. For instance, some believed that the organisation had initially come from a 'low base' of performance (HA02, Program Director), whilst others were more hesitant to describe the organisation's performance as poor; rather, they tended to regard the organisation as 'always… high [*performing*]' (HA11, Nurse Unit Manager). Despite these differences, interviewees tended to agree on the rapid and substantial performance improvement of the case site from the early 1990s onwards. For instance:

> *I used to think The Alfred was a basket case in those days… it came from a low base in the early 1990s and then… it sort of had a meteoric rise. (HA02, Program Director)*

> *…access is amazing now… [*in the early days*] we would have just waited for the [*ward*] round tomorrow and then we would have gone, 'yeah you can go home. Oh, it's 4 o'clock why don't you go home tomorrow'. You just delay, delay, delay… no one was communicating [*15 years ago*]. (HA11, Nurse Unit Manager)*

Explanations as to how or why this level of relatively rapid performance improvement occurred were varied. Some interviewees spoke about changes in demand and increasing clinical acuity as providing the drive and impetus for change (HA04, Program Director; HA16, Senior Executive). Others cited broader generational changes and shifts in societal values and

mindsets (HA08, Program Director; HA11, Nurse Unit Manager). The necessary 'clearing of the dead wood' (HA12, Nurse Unit Manager) to provide room for a new cohort of staff and administrators who were motivated by a different set of values and patient-centred care practices was also offered as an explanation. Others referred more directly to the context of rationalisation and reform that was shaping health during that time, and the influence of individual leaders upon the organisation:

> *…we had this sort of 'explosion of ideas' in the late 80s and then there was the reorganisation… of the health services, which meant we all had to think outside of the square.... I think that sort of environment changed not everybody's thinking, but a lot of thinking. I very much believe that leadership influences how the rest of the organisation – and I think he [*the CEO at that time*]… was a catalyst… (HA08, Program Director)*

6.1.3 Key developments: the threat of closure

One prominent explanation[18] for performance change that arose from interview data was the threat of closure. Interviewees recalled the event in dramatic terms:

> *…there was a very clear attempt to say The Alfred is surplus to requirements… get rid of it. And, within two years [*we*] became much bigger, much stronger, much more effective… (HA01, Senior Executive)*

> *…they were going to close us down… [*we*] were in dire straits… if someone hadn't come up with the idea of 'let's do trauma [*as a specialist state-wide service*]'… this place would have been shifted and closed… (HA02, Program Director)*[19]

> *…the most relevant thing about The Alfred when I arrived there was that they'd just had a near death experience… (HA13, Senior Executive)*

Thus, the threat of closure was seemingly enshrined within organisational folklore. The threat of closure story was repeated frequently within interviews; however, the specifics were often vague or even incorrect. For instance, interviewees often cited incorrect dates (HA01, Senior Executive; HA08, Program Director), attributed details that were chronologically inaccurate (HA02, Program Director), or drew causal associations that were refuted by evidence

[18] As an indication of how prominent this explanation was, all of those interviewees who had experience with the organisation during that early 'survival' period spoke about the threat of closure.

[19] A number of interviewees drew a relationship between the organisation's commencement of state-wide service offerings and their survival following the threat of closure; however, the strength of this association was refuted by another interviewee who had more direct experience with organisational strategy and decision-making during that period. Importantly, however, the perception of the association between state-wide services and survival may have influenced future strategy, and it is possible that it created a positive effect upon performance.

provided by other interviewees (HA02, Program Director). Despite some inconsistences, the impact of the threat of closure upon the organisation's performance trajectory was agreed among interviewees, and interviewees frequently described the event using emotive language. For example: 'morale was pretty low there really, because of the near-death experience…' (HA13, Senior Executive).

One of the most illuminating findings from the interviewee data was provided by an individual who had worked at the case site as a Senior Executive at around the time of the threat of closure – a unique perspective among the senior members of staff who were interviewed. As described by this interviewee (HA13, Senior Executive), the severity of the threat was perhaps 'overestimated' by the organisation. In particular, it seems that the threat was less a case of closure *per se*, than a potential period of divestment resulting in the organisation 'wither[*ing*] on the vine', over time, in order to accommodate increased investment in acute services in Melbourne's eastern suburbs (HA13, Senior Executive). Despite this, the threat – perceived or real – provided senior executives with an important opportunity to ignite change:

> *…because of that sort of 'sinking ship' stuff… when I arrived there I found the organisation quite receptive for change really… I believe they always overestimated the chance that they would ever be moved and there was a real sense when I got there that they'd somehow dodged a bullet… [*but*] I don't know that that bullet was ever all that real… I do think it was a useful bullet…*
>
> *I think you could read into the metropolitan health hospital planning board report that The Alfred was a candidate to be moved. So, it wasn't entirely imaginary… it wasn't an acute attack of paranoia… there was some basis in fact for them… the health department and government policy was to try and decentralise health services and The Alfred was somewhat vulnerable to those discussions… but… the belief whether true or false was quite useful… [*a*] bit of a wakeup call really, to make sure that we did certain things there to improve… (HA13, Senior Executive)*

It seems, the reality of the threat was perhaps less relevant than the impetus and drive that it inspired. Senior administrators could 'put the view that this was… a wake-up call' suggesting that the threat of closure was leveraged (or even slightly exaggerated) by leaders to create an organisational climate that was receptive to change. As recalled by one interviewee: '[*after*] the [*state-wide*] reorganisation [*of the 1990s*]… we all had to think outside the square of 'The Alfred'. I think that environment changed, not everybody's thinking, but a lot of thinking' (HA08, Program Director). The interviewee spoke further about

the upswell of interest among staff to do things differently in order to shore up the future of the organisation:

> *…[*when*] it was mooted that we close The Alfred and move out to where [*the population growth*] is… there were a lot of people who were very very anxious about that… it was another fairly important part in The Alfred's history about 'well, god how are we going to make it so that they can't close us down?' We've got to be something that's needed... that drove some of this…'let's become the expert'… that was part of the drive to say this is about our security for the future. (HA08, Program Director)*

Perhaps due to the severe 'jolt' associated with the threat of closure, this period of the organisation's history appears to have witnessed a dramatic boost in hive energy. Early beginnings of hive consciousness are also evident, as leaders and workers at the case site pulled together for organisational survival. Further, the increase in government scrutiny prior to the threat of closure (in which hospitals were required to collect more performance data, audit hospital processes, review the clinical quality of services, and implement efficiency programs), appears to have provided the right conditions for the information-action cycle to take root within the organisation. By the time the organisation was under threat, this in turn, provided a well-trodden routine with which increased hive energy could be put to work for improvement.

6.1.4 Key developments: harnessing hive energy and the information-action cycle

There is some evidence to suggest that the presence of hive energy may have pre-dated the timeframe selected for this study (late 1980s to late 2010s). One interviewee recalled several shifts that had occurred at Alfred Health under the leadership of William ('Bill') Kricker who, in 1988, was the first General Manager (equivalent to CEO) to be recruited from an industry other than healthcare,[20] and whose leadership style stimulated fresh perspectives and thinking:

> *…he was a businessman… he really challenged the status quo. He started to change the way we looked… he was open to seeing and listening to his staff… he had no preconceived ideas about how a hospital should be run… he really… let people run with different thoughts… (HA08, Program Director).*

[20] Prior to joining Alfred Health, Bill Kricker had previously administered Holeproof – a garment manufacturer. The appointment of non-clinical or out-of-sector senior managers had become more common during the 1980s, as governments sought to rationalise and corporatise public services under the NPM movement (Ashworth et al. 2013).

Similarly, another staff member spoke about Alfred Health as a long-standing 'doer':

> *…historically going back, The Alfred was always an unknown entity. It was always: 'oh my God they're from The Alfred… The Alfred's a doer. The Alfred's not afraid to take on things and to challenge the norm'. (HA12, Nurse Unit Manager)*

'Always' is a very long time however, and the perception of time is likely to be influenced by several factors such as: an individual's span of career; level of awareness of the organisation prior to joining; the year in which the person joined the organisation; the particular part of the organisation that they were exposed to; and their level of seniority.[21] From a contrasting perspective, other interviewees (having viewed the organisation from afar) had considered Alfred Health 'a basket case' during the 1980s and 1990s (HA02, Program Director).

What appears relatively clear from the data, however, is that by the early to mid-1990s, hive energy was gaining traction. For example, one interviewee recalled that during the post-threat years, it felt as if 'you're pushing against a bit of an open door when you're talking about [*clinical innovation and improvement*]… at The Alfred, more so than other places I've worked…' (HA13, Senior Executive). This may relate to the state of the organisation prior to the threat (the cultural pre-conditions) as well as the sorts of strategies employed during and post-threat. Another staff member who recalled the post-threat period supported this view:

> *…we continually challenge and think and innovate to make sure that we remain the best, and everyone's committed to that, at all levels. This fast-paced, this really really productive, efficient workforce [*has been this way since I began in the mid-1990s*] (HA17, Senior Executive)*

Further, as canvassed above, the threat of closure was cited as a key motivating force during this period:

> *…I do remember the threat of closure… when I got here The Alfred seemed to be trying to ramp up everything… because they'd clearly had that threat. They'd been reaffirmed and then they were… really investing in a lot… (HA17, Senior Executive)*

[21] For instance, a more senior role may offer a broader view, or in contrast, a less senior role may offer a more accurate insight into the culture at the coalface of the part of the organisation within which they work or worked.

Towards the end of the 'survival' decade, the organisation appears to have generated a number of clear structures and routines for learning, innovation and improvement, which offer an explanation as to how the organisation harnessed hive energy for ongoing performance improvement. These structures and routines could broadly be viewed as components of the information-action hive cycle. For example, data sources (e.g. HA02, Program Director; HA11, Nurse Unit Manager) would suggest that Alfred Health's committee structures had come to function beyond the standard 'tick a box' compliance model; rather, committees were used as a process to initiate and facilitate proactive problem-solving:

> *…everyone goes on so many committees… we are very pro-active and… not reactive too often, which is good. When there's a problem, it's like 'quickly let's all get together'. (HA11, Nurse Unit Manager)*

Reflecting on the role and function of improvement committees, another interviewee stated that 'the hospital has grown and extended and it's a much more dynamic place… than it was… happy to embrace change' (HA02, Program Director). One explanation as to why this was so, was offered:

> *If you want to be innovative and be an early adopter, you just have to know what the rules are. I think one of the problems people have is working in a system where there aren't any rules and then it becomes a case of, 'he's getting away with it, why am I being stopped'… because the rules are the same for everybody it's not as restrictive. (HA02, Program Director)*

These two examples illustrate how committees came to be used (and relied upon) as important social structures to help support and direct the flow of hive energy. Eliminating or minimising obstructions to motivation and hive energy, such as not 'know[*ing*] what the rules are' (HA02, Program Director), or bureaucratic delays preventing staff from 'quickly… get[*ting*] together' (HA11, Nurse Unit Manager) appear to have helped sustain momentum.

Beyond committees, interview data pointed to other formal structures that provided effective mechanisms upon which staff were able to direct and invest their enthusiasm for change, including: clinical and non-clinical research programmes (HA01, Senior Executive; HA08, Program Director; HA13, Senior Executive); ongoing education and professional development (HA03, Consultant Physician; HA05, Senior Executive; HA08, Program Director; HA10, Program Director; HA11, Nurse Unit Manager); benchmarking and audit (HA01, Senior Executive; HA08, Program Director; HA10, Program Director; HA13, Senior Executive; HA14, Senior Executive; HA17, Senior Executive); hospital accreditation cycles (HA05, Senior

Executive; HA15, Senior Executive); and scouting for and introducing new technologies and innovations (HA02, Program Director; HA05, Senior Executive; HA08, Program Director; HA13, Senior Executive; HA14, Senior Executive). Documentary evidence suggests that many of these structures and tactics were initiated or accelerated during the survival period (see Appendix F).

6.2 2000S AND ORGANISATION RESURGENCE: KEY DEVELOPMENTS FROM 1997 TO 2009

6.2.1 Summary of key events

The 'resurgence period' of the late 1990s to late 2000s was a time of growth and autonomy. The first few years following the threat of closure were the last for the residing Liberal government in Victoria. Perhaps as a signal of the waning influence of Liberal/Coalition rationalisation reforms, the threat of closure was truly dispelled in 1998 with the announcement of a large (>$50m) capital investment at Alfred Health to support service expansion. Interestingly, the investment did not come from the Department of Health itself; rather, it was cobbled together between various private donations, funding received from a non-Health government agency, and supplemented by the sale of assets at the case site.

The election of the Bracks Labor government in 1999 brought about a cascade of changes and new opportunities for the organisation. The centralised hospital network structures that were created in 1995 were decentralised in 2000, forming smaller administrative units that were more reminiscent of the two, three or four-campus hospital structures of the 1980s. Thus, a new board was formed and a Chair appointed. The Chair, Professor Stephen Duckett,[22] brought to the role a professional background of substantial leadership experience, in-field expertise and political acumen. Stephen Duckett drew on these personal and professional qualities to spearhead a strong advocacy role, including publishing criticisms of proposed government reforms within the organisation's annual reports.

[22] Professor Stephen Duckett is an academic, health economist and health bureaucrat. Prior to his appointment to the Alfred Health board, he was instrumental in the formation of Australia's Medicare scheme, and had worked in the Victorian health system as Director of Acute Care for the Victorian Department of Health and Community Services. It was during this time that Duckett led the development of Australia's approach to casemix funding for the acute care system.

Internal to the organisation, Dr Michael Walsh was appointed as Chief Executive in mid-1997, marking a shift away from centralised authority and hierarchy, and pre-empting the broader state-wide devolution of tertiary care services (as described above). In the late 1990s Dr Michael Walsh led a review of clinical service configuration, subsequently increasing emphasis on and investment towards, clinical specialisations over general clinical services. This provided the organisation with a competitive advantage over other peer-hospitals, particularly for attracting capital infrastructure and research funding. Similarly, there was an increased investment in the use of technology and IT solutions to support safety and quality standardisations, and further emphasis on service efficiencies (e.g. a bed-management strategy to improve patient flow was introduced in 1997). Additionally, during the late 1990s the board of directors instructed the Executive to focus upon improving the public reputation of the organisation (HA13, Senior Executive), which appears to have led to a significant increase in the profile of the organisation, and the generation of a far larger income stream through private fundraising.

An interviewee who was part of the senior executive team in the late-1990s spoke about deliberately employing the John Kotter 8-Step Process for Leading Change model[23] as a strategy to enhance collective energy (hive energy), increase broad awareness of the importance of organisation performance overall (hive consciousness), and exploit the opportunity to use this force towards organisational performance improvement:

> *…At that time… [*we were*]… using Kotter's, I think it was called leadership for change… I always found that very helpful… it was… [*a*] deliberate… strategy. (HA13, Senior Executive)*

Reflecting on how 'Kotter 101' (HA13, Senior Executive) worked in practice, the interviewee spoke about using various tactics to ensure that each part of the organisation understood and agreed with the vision for change, and that individuals felt (and were) valued and listened to in order to smooth the way for changed organisational structures or practices:

[23] 'Kotter's 8 Steps refers to a popular eight-step organisational improvement model devised in the mid-1990s (Kotter 1996). The steps are summarised as follows: 1) establish a sense of urgency about the need to change; 2) create a guiding coalition of people with the power and energy to drive the change; 3) develop a vision and strategy for change; 4) communicate the change vision throughout the organisation; 5) empower broad-based action in order to fulfil this vision; 6) create short-term wins in order to build enthusiasm for change; 7) consolidate gains and produce more change in order to maintain momentum; and 8) incorporate the new, changed practices in the corporate culture in order to sustain the improvements.

> *…in order to get this happening, you have to have the… executive and the… board sort of acquiescing, and then the leadership for change work… [*we*] needed to… develop and articulate the plan and then get people to buy into it… we didn't use any external consultants really, that sort of stuff. It was just… in the energy of… [*the*] first year… [*There*] is a lot of face to face communication whether to groups or to individuals, people quite enjoyed that... Means that they were having an opportunity to have their say if they had ongoing anxieties… you could talk through all of that and give them some reassurance. So, that was sort of the way it happened. (HA13, Senior Executive)*

This excerpt illustrates a number of important shifts from the traditional hospital hierarchy to a somewhat more democratic way of working. The investment of executive time in direct communication with staff members – hearing their concerns and anxieties and responding with further discussion and reassurance – is indicative of this shift. It is possible that these practices may have commenced before the resurgence period, under the previous leader, Bill Kricker, however there is insufficient data to establish this. Hierarchical features of the organisation did persist during these early years, for instance developing a plan and subsequently 'get[*ting*] people to buy into it' rather than developing the plan together, or communicating '*to* groups or *to* individuals' (emphasis added) rather than with them (HA013, Senior Executive). Nonetheless, these features must be viewed in the context of the late 1990s in which, despite the murmurings of change, hierarchy remained the dominant paradigm and practice. However, these early movements away from the traditional hierarchical model appear to have influenced the degree to which staff were willing to 'acquiesce' in the face of change. Rather than diminishing after the threat of closure had receded, hive energy appears to have steadily increased.

From 2000 to around 2003 severe nursing workforce shortages affected the entire Victorian health system, bringing industrial re-negotiations for entitlements, and the need for hospitals to enhance their reputation in order to attract and retain good staff. As prompted by the Board, the year 2000 also marked the beginning of a period of rapid and significant increases in the receipt of donations and grant funding, including large gifts and bequests from private and business donors and a series of outstanding research grant results. Similarly, for roughly a decade, the organisation attracted very large volumes of government funding for capital works, equipment, facility refurbishment and ongoing service expansion. For instance, annual reports published between 2000/2001 and 2007/2008 announced the receipt of over $260m in new funding for various capital infrastructure and refurbishment projects. During the same period, over $160m in research funding was received.

Following the mid-term retirement of Premier Bracks from Parliament in 2006, John Brumby was elected Leader of the Labor party, and following this, a new board Chair was appointed. In 2007 the Department of Health launched a state-wide 'Redesigning Care' program to improve service quality and efficiencies using process improvement methodologies like Lean Thinking, Six Sigma and Theory of Constraints. Rather than being forced upon acute services, the program was 'opt-in' and those organisations who decided to opt-in (including Alfred Health) received educational and other project support to facilitate improvement projects. Interestingly, this program was not mentioned in interview data.

The year 2007 also witnessed the unfolding of a scandal at the case site, involving Ombudsman investigations of fraud by a senior surgeon. The 'Kossmann Affair', as it was known (Wotherspoon 2008), received substantial media attention over many months, and had repercussions for the site's reputation. In 2008, perhaps partly in response to this scandal, some changes to the administrative structure were made involving a change of name and corporate branding.

By the mid-2000s Alfred Health was a seemingly 'well-oiled' machine for change and improvement, and the organisation was routinely engaged in benchmarking and peer-learning initiatives. The organisation had also acquired funding for and had developed or built a number of new clinical facilities and research/education centres including the large state-wide trauma facility and The Alfred Centre, a 'one stop shop' for Victorian elective surgeries.

6.2.2 Key developments: performance

From an organisational performance perspective, the case site was regarded highly, as evidenced by hospital accreditation results and the very high ratings received through the Victorian patient satisfaction survey. There is also evidence of a steady trajectory of improvement in patient access to care (as per reported elective surgery waiting list data and emergency department waiting times, published within annual reports). Despite these successes, financial performance was far less positive. The organisation reported a deficit in six of the nine financial years between 2000/2001 and 2008/2009, and an Auditor-General's report published in the early 2000s noted that the organisation was in severe financial difficulty. Commentary within annual reports during this time pushed-back against accusations of poor financial performance, noting that reported deficits were inclusive rather than exclusive of capital depreciations, and although specific funding was provided for new

capital works, these funds did not accommodate depreciation of assets more generally. A new CEO was appointed in 2004 (after Dr Michael Walsh's seven-year term). In 2004/2005 the organisation introduced a new private patient initiative in order to generate additional funds from patient health insurance. This measure, in conjunction with other efficiency tactics, contributed to the lasting resolution of financial difficulties thereafter.

6.2.3 Key developments: emerging and entwining hive attributes and cycles

Having survived the near-death experience of its flagship hospital during mid-1990s, Alfred Health appears to have been emboldened for action, expansion and improvement. Described by one interviewee:

> *…there was a… I was going to say resurgence, it's a kind of corny word but there was a sense that The Alfred wanted a real identity. They wanted to be a quality place. They began to do heart and lung transplantation… [*and*] they became a trauma hospital which gave it a high profile. (HA10, Program Director).*

Thus, there is evidence of an ever-growing level of hive energy within the organisation during this period, alongside a greater awareness of, and aspiration towards, the delivery of excellent clinical care (the hive purpose). Interview evidence also suggests that the information-action cycle had become an entrenched routine during the resurgence decade. Staff were encouraged to 'scout' for new innovations through attendance at overseas conferences, site visits to high-performing hospitals across the globe, and by upskilling through higher degrees and research (HA08, Program Director; HA11, Nurse Unit Manager). Similarly, benchmarking became a routine feature of the organisation's quality improvement processes. The organisation was early to join Health Roundtable (HA01, Senior Executive) – a non-profit membership organisation founded in 1995 to help hospitals better understand and improve their performance through data analysis and peer comparison.

To close the loop between information gathered and action taken, Alfred Health was often first among its peers to trial and implement a new technology or innovative process (HA02, Program Director; HA13, Senior Executive). Further, the organisation was frequently selected by government as the trial site for regulatory changes or performance monitoring processes (HA05, Senior Executive). A good example of the organisation putting information into action, includes the introduction of an electronic Picture Archive System (PAS) in the early 2000s, with substantial process efficiencies, quality and safety improvements, and overarching organisation performance benefits:

> *When I arrived here [*in the early 2000s*] we had cut film and film bags and it was just a nightmare because in the morning… the trauma system wanted the x-rays from last night, the neurosurgeons wanted it, the doctor who was looking after them on the ward wanted the films and there was only one set of films. So it was [*a case of*] which intern got up earlier to snaffle the films… there'd be pieces of a patient's film record all over the hospital, hidden away in cupboards so no one could take them… then we went [*electronic*] and that completely transformed us and meant that there were no lost films ever and if 20 people wanted to look at them at once they could… it took two years to get that through the hospital…*
>
> *[*Before we went electronic*]… the only thing you could do [*after a film is lost*] is do another CT scan and we repeated studies all the time. Or you had a wild guess on what you thought you saw last night [*on the scan*]… currently we do about 200,000 exams a year and we would have lost, oh, 15 to 20 percent of them [*before PAS*]... (HA02, Program Director)*

The threat of closure contributed substantially to the development of hive consciousness: to an expanded awareness of the organisation as a whole rather than narrower departmental 'tribal' identities. This included a growing awareness of the importance of maintaining and improving the performance of the organisation in order to protect against potential future threats. As noted by one Senior Executive staff member (HA13) the threat had ignited within the organisation 'more of a sense of unity… John Kotter 101 [*style*]', adding (in John Kotter's language), 'there's got to be a perception of a burning deck', and:

> *…you have to communicate all of that so people can understand, 'yep I understand that there's a burning deck', and 'yes I understand that there's a plan and I've had a bit of interchange about that plan' and… 'I've raised my suggestions and concerns and they've been listened to'… all of that absolutely went on at the time… (HA13, Senior Executive)*

The threat of closure helped to re-draw the organisational boundaries from the more restrictive traditional hospital sub-groups (e.g. ward, unit, department or professional groupings such as doctors, nurses, allied health, administrators etc.) to a more unified whole at the level of the organisation itself. There appears to have been an organisational-wide realisation that, to survive, overall hospital performance mattered. This new realisation was exploited by leaders and managers to create a lasting impression on the organisation. One interviewee, who was a senior leader at Alfred Health following the threat of closure, even described the threat as a 'useful bullet', adding:

> *The belief [*that the hospital might be closed*] whether true or false was quite useful… because you could put the view that this was… [*a*] bit of a wakeup call, really, to make sure that we did certain things there to improve… We didn't rest on our laurels, pat ourselves on the back without really being clear about… our performance relative to others in… a whole range of areas. (HA13, Senior Executive)*

However, despite the post-threat presence of hive consciousness as a core attitude and value of Alfred Health, it was not until the early 2010s (the maturation period, as described in the next section) that the structure of the organisation was remoulded in a way that was conducive to the smooth enactment of this principle.

Whereas interviewees described a more rigid hierarchy in operation during the early to mid-1990s (at both higher and lower levels of the organisation), both administrators and those who worked at the coalface noted the shift towards a more consultative approach in the late 1990s and early 2000s. This signalled the emergence of the discussion-consensus cycle, including Senior Executives seeking advice from operational staff about how to resolve challenges within discrete departments:

> *I met with hospital administrators not long after I started [*in the late 1990s*]. They sought my opinion on the functioning of the unit at that time and I described what I just described to you… people were scared to talk. People were too scared to question, so that's what I found when I got here. It was pretty terrible... (HA12, Nurse Unit Manager)*

At a broader level, feedback loop routines for staff consultation were spread throughout the organisation:

> *… [*there was*] a lot of face-to-face communication whether to groups or to individuals. People quite enjoyed that I think.... they were having an opportunity to have their say (HA13, Senior Executive)*

It appears as though this mechanism for consultation was initiated top-down, yet rapidly embraced from below. There are early examples of changes initiated from the coalface during the resurgence decade, perhaps suggesting that permission to 'speak up' was received by a staff cohort who felt ready for this new opportunity and responsibility. This might indicate the very early beginnings of social approval for actions of individual agency (as per the consistency-flexibility cycle). For example:

> *…when I came to The Alfred [*in the late 1990s*] there were a lot of what I would call obtunded patients, so, patients laying in beds with tracheostomies, clearly no goals for rehabilitation, no quality of life… I said, 'well what are we doing with these patients? They're going to be here for years if we don't do something about it.' … through a process of communication, family meetings, discussions, we would decannulate those patients and let nature take its course. (HA12, Nurse Unit Manager)*

6.3 ORGANISATIONAL MATURATION: KEY DEVELOPMENTS FROM 2009 TO 2018

6.3.1 Summary of key events

Two changes in state government occurred during the period of organisational maturation. In 2010 Victoria elected the first Liberal-National Coalition to be appointed in over ten years, which interestingly, coincided with a steep decline in government capital and infrastructure funding received by the case site. Four years later, the elected majority returned to Labor under the Andrews government; however, this leadership change did not increase the availability of capital funding as experienced under earlier Labor governments. Despite this, the receipt of substantial private donations and research grant funding continued throughout the period.

A major feature of national healthcare policy in the early 2010s (under a federal Labor Government) was the introduction of the National Emergency Access Target (NEAT) and National Elective Surgery Target (NEST) – as inspired by similar reform initiatives introduced elsewhere, including the National Health Service (NHS), United Kingdom (Orr 2008). The emergency access target stipulated that a pre-determined percentage of patients presenting at each hospital would be admitted, discharged or otherwise transferred within four hours of presentation to the hospital's emergency department. In conjunction, the elective surgery target required that a pre-determined percentage of patients awaiting an elective surgical procedure were treated within the clinically-recommended timeframe (Dimakou et al. 2008). The NEAT and NEST hospital performance reforms were introduced to address broad safety and quality concerns relating to poor patient access to health services, and as a result, poor patient health outcomes. However, the targets also carried an additional economic imperative, encouraging process efficiencies and ultimately, the hope of alleviating public spending on health. Between 2012 and 2016, the target percentage of patients to be treated within the designated timeframe/s was increased in progressive (6 or 12 month) increments. Hospitals that met the targets were rewarded with financial incentives.

Two scandals unfolded in the early to mid-2010s, which appear to have influenced aspects of organisational performance, either reputationally or as a trigger for change and improvement. The first involved a specialist clinical service that was temporarily suspended by the case site, in response to a Victorian government decision to withdraw (with very little advance notice) a previously-pledged increase in funding for the specialist service. The

closure attracted media attention and prompted a formal Ombudsman's investigation. The second scandal came in response to a series of accusations of workplace bullying and harassment, particularly amongst surgical staff. Within a few months of this scandal breaking, a related Auditor-General's investigation into Occupational Violence Against Healthcare Workers was released, which focused upon the increasing incidence of violence perpetrated by patients, relatives or carers. Together, these events appear to have prompted a series of internal initiatives (as described below) to improve organisational safety for staff members.

In 2009 a new CEO, Professor Andrew Way (recruited from the United Kingdom's National Health Service (NHS)), was appointed to the organisation. As is common practice, the change in leadership brought a new round of structural change. Having devolved the organisational structure in the early 2000s; in the early 2010s a more functional balance was sought between centralised and devolved lines of authority (as discussed in detail in Section 6.3.3).

A series of projects and initiatives were introduced in the 2010s, some major in scale, and others more discrete. A large-scale patient-centred care initiative was launched in 2011, which sought to increase the level of patient involvement in both individual and organisational-level decision-making, as applied to all parts of the organisation. The strategy was described as supporting consumer, carer and community participation via five key priorities: i) a Patient Charter of Rights; ii) education to support patient-centred care; iii) patient information; iv) patient feedback; v) engagement with consumers and carers. Several projects supported the development of patient-centred care practices, under each of these key priorities.

Another major initiative encompassed a whole-of-organisation clinical service redesign program, which was launched in 2012 in response to the newly-imposed NEAT (emergency access) and NEST (elective surgery) performance targets. Unlike many peer organisations, the case site's approach to service redesign appeared to delve deeper than the more customary government compliance response. Rather than embarking on a series of piecemeal process-level improvements, the organisation initially focused its energies upon the question: 'what constitutes timely and quality care?', which led to the shared development of a set of principles and business rules for care excellence. This project was called 'Timely Quality Care' (TQC) and is described in detail in Section 6.3.4 of this chapter. In summary, staff throughout the organisation were invited to participate in the development

of TQC principles, and the process unfolded relatively slowly, over a two-year period. The principles for timely and high-quality care became well known by all staff, highly valued, and easily adopted throughout the organisation. Process improvement projects were subsequently launched, almost as extensions to these principles, ensuring that what was valued was also enacted.

Other projects worthy of note include the publication of daily performance dashboards on the organisation's public website from 2010/2011 onwards; the introduction of structured inter-disciplinary ward rounds in 2013; the use of video and technology supports to help ensure that patients receive, understand and retain important aspects of their discharge plan upon leaving hospital care (i.e. CareTV); and IT linkage initiatives to integrate patient information across various parts of the organisation (i.e. BRIDGE software).

6.3.2 Key developments: performance

Despite some annual variation, an overall downward trend in waiting times for surgery (across all categories of urgency) was recorded within annual report data during the period of interest. A similar trend was recorded for emergency access, including patients who were discharged from the emergency department within the specified 4 hours, and those who were admitted for further treatment within 24 hours of presentation. This was achieved despite the growing demand for services. Between 2009/10 and 2016/17 the number of emergency department presentations increased by over 20 per cent. The rate of elective surgery procedures conducted was more stable during this period, perhaps linked to government-funding constraints.

Further, Alfred Health continued to receive full accreditation status, often with numerous 'met with merit' ratings, or 'outstanding achievement' results. The organisation reported increasing participation in the hand hygiene program (which exceeded the benchmark set by government); good results for hospital mortality reduction (as compared with similar-benchmarked peers); and continued excellent feedback, year-on-year, as per patient experience surveys (for instance, approximately 95% of patients rated the quality of their overall care as 'good', 'very good' or 'exceptional' over the 2014/15, 2015/16 and 2016/17 reporting periods).

Between 2010 and 2017, the organisation attracted five prestigious awards, including Metropolitan Health Service of the Year, the Health Leaders award, two Victorian Public Healthcare Awards, and the Premier's Health Service of the Year award. The organisation had also managed to remain in financial surplus, having not reported a deficit since 2006.

6.3.3 Key developments: structural reorganisation and integration

Two key events that occurred during the maturation years appear to loom large within interview data. The first was the major reorganisation of the case site in the early 2010s. The second was the TQC program. Both of these strategies were spoken of as pivotal to the organisation's development during this decade (HA01, Senior Executive; HA04, Program Director; HA05, Senior Executive; HA07, Program Director; HA12, Nurse Unit Manager; HA15, Senior Executive; HA17, Senior Executive).

Interviewees described the organisation as overly-devolved prior to the structural reorganisation. One example highlighted the stark campus-based divisions that operated prior to the restructure:

> *… you were very much on your own. Each [*campus*] site was on their own… we had three separate accreditation cycles for each site… the systems were manual. They weren't connected… there was oversight by one quality unit but it was 'hard processes' [*only*]… Staff surveys were separate and siloed. The reporting structures were… very much [*directed*] into your site… there wasn't the synergy in getting experts to work across [*sites*]. Finally, we started to merge… and reporting got more sophisticated. (HA05, Senior Executive)*

With a slightly contrasting view, however, another interviewee (who had been with the organisation for a shorter period of time) suggested that 'ever since I've been here [*from the mid to late 2000s*] …we've always thought about the whole of health service'. However, the interviewee did concede '…there was… a little bit of negotiation when I started about crossing the campus boundaries, but we've always thought about things such as access as being something the whole of health service is responsible for' (HA07, Program Director). This might suggest that although the organisation was not well structured for service integration in the late 2000s, a number of the cultural qualities (e.g. hive purpose, energy, consciousness) that were useful (or perhaps necessary) for supporting this type of structural transformation may already have existed. And, perhaps to exploit these existing qualities, interview data suggest that structural integration may have involved a deliberate effort to pair structural

change with the evolution of hive-like attributes. For example, interviewees reflected on a 'definite strategy' for an expanded perspective:

> *…there's been a real shift in the last… two or three years, around looking at the organisation as a whole - looking at pockets, but how everything kind of interlinks… there probably has always been this focus, but I think it's become more [*so*]…there's been a… real strategy… of engaging clinical staff on the wards in all different [*professional*] groups… to try and get them to work together in a more collegial way with a shared purpose. I don't know that we've actually achieved it all, in every ward and program, but I think that there has been a definite strategy to push for that… before that strategy there was probably… much more silos... (HA04, Program Director)*

If so, it is likely that these cultural attributes may have been both reinforcing *of* the structural reorganisation and reinforced and strengthened *by* the subsequent process of restructure.

It makes logical sense that a return to a more centralised structure would bring process-level consistencies to the organisation. This included a strengthening of governance structures, both clinical and administrative. For example:

> *The biggest change in this public hospital has been clinical governance… [*When I came here in the early 2000s*] we used to pay lip service to it and now it's basically the thing that drives everything else. By clinical governance I mean proving that we are reassuring our board that we have processes in place to minimise harm to patients and maximise the patient output and balance the books. So it covers pretty well everything we do. (HA02, Program Director)*

> *… the governance structures around quality and safety are strong… We have what we call Clinical Outcome Review Committees, so when incidents occur there's a review process that's external to the ward and there's accountability that gets reported up through to exec and then there's a tracking system to make sure that those actions are actually achieved. (HA05, Senior Executive)*

Thus, with the strengthening of clinical governance the 'consistency' part of the consistency-flexibility hive cycle also appears to have strengthened during these early years of organisational maturation. The 'flexibility' component of the cycle refers to the capacity for individuals (or groups of individuals) to act with independent agency within or beyond the boundaries of consistent rules. As illustrated in the example below, this sense of agency also appears to have been an important component for the success of the cross-campus structural reorganisation. In order for staff at various campuses to move beyond a fragmented 'us and them' mentality, it was important for staff to feel as though they had a degree of autonomy, and were not beholden to others 'telling…[*them*] what to do and taking charge' (HA07, Program Director):

> *…I worked really hard at [*our campus*] to make sure that we didn't have a siege mentality about, 'oh the Big Bad Alfred [*main campus*]… it's always telling us what to do and taking charge' so we sort of tried to turn that a little bit around and that has continued in the era where we think about programs that really work across the three campuses and that's pretty much the case in a lot of programs now… everyone thinks about all three sites… when they're thinking about the organisation now. (HA07, Program Director)*

As such, it appears as though the structural reorganisation may have both benefited from and facilitated the further development of the hive attributes, and enacted (and strengthened) the organisation's capacity to employ the consistency-flexibility cycle for performance improvement.

6.3.4 Key developments: NEAT and NEST targets, and the TQC program

Commencing in 2012, the TQC program brought major whole-of-organisation change to the case site. As described by one Senior Executive, although the initial impetus for the change program was the satisfaction of the NEAT and NEST targets, the case site went through a process of target reinterpretation - tailoring and localising the externally-imposed objectives to suit local knowledge, culture and need (as per the threat-insulation cycle):

> *…the initial driver was that we needed to improve our emergency patient pathway and it was focused around the [*NEAT*] four-hour rule and how we're going to achieve that. But, we knew it was much bigger than focusing on four hours in the emergency department… in order to get the front end right we needed to fix the back end… it was a whole of organisation response that was required. (HA17, Senior Executive)*

As observed by one interviewee, the program was 'never marketed' as a response to a government target; rather, it triggered a genuine dialogue about what constituted excellent patient care:

> *… it started off as a focus on the emergency department and throughput [*but*] it wasn't marketed as that… it was not focusing on the four hour waits. That was never ever talked about… it was about, 'how do we do the best thing for our patients in emergency?' and 'how do we get the communication right between the emergency department and the wards?' (HA04, Program Director).*

These deeper questions appear to have uncovered the seeds for more radical change. Although the organisation had initially responded to the new targets with smaller, incremental improvement projects, it became clear that a more lasting change would require a broader vision. Whereas the government targets pinpointed symptomatic indicators of performance (e.g. delays in the emergency department), the organisation took steps to uproot the problem at its cause. As observed by one interviewee:

> *…[*the redesign program*] was initially born out of a need to address the NEAT/NEST targets. We did a bit here and a bit there… and every year it was just killing us. You know we'd have these raft of improvements and we'd get the next level and then the [*government*] targets would change again. So the decision was made: 'well you know, we're a pretty bright bunch let's actually not do this by a thousand cuts, let's actually be pretty revolutionary in the way we think about this', and I think people were captured by that. (HA07, Program Director)*

Thus, the program ignited major organisation-wide reform, centred upon a set of six fundamental principles that embodied the hive purpose – patient care:

> *… it was pretty much a complete hospital reform that was driven by the executive team but really focusing on engagement and local ownership… the outcome of it was: 'what are the key areas… that are broken?', 'what do we need to fix?' and 'what are the fundamental principles that we're all going to agree and work to?'… [*it took*] two years of work… [*we*] engaged each clinical program and we developed six principles of what we call timely quality care. (HA17, Senior Executive)*

The six principles were:

1. Patients that present to the Emergency and Trauma Centre (E&TC) will be assessed, have treatment and investigations initiated and a management plan in place within 60 minutes of arrival.
2. Patients will be discharged from the E&TC or admitted to the hospital as decided by the ET&C consultant staff.
3. Patients will be reviewed by the inpatient team within 2 hours of being referred for admission.
4. Patients will be admitted to a bed in the most appropriate clinical place, the first time.
5. Patients will have their investigations, consultations and interventions completed as soon as possible, in order of request and in no longer than 24 hours.
6. Patients will be actively managed to ensure they are only in hospital for as long as clinically necessary.

The first principle of TQC required that patients be examined by the most appropriate senior decision-maker as soon as possible after presentation to the emergency department. This reversed the common practice of junior medical staff reviewing patients and progressively escalating their care to more senior clinicians, as needed, which is known to cause substantial delay to treatment. The second principle essentially created a 'no refusal policy' in which ward or specialist staff were required to trust the clinical judgements of the emergency department referring team. This addressed the problem of specialist or ward staff questioning the accuracy of the provisional diagnosis and thereafter refusing or delaying patient entry to a ward. This common conflict between specialist and emergency department staff caused unnecessary delay, particularly so because the diagnostic error rate of senior

emergency department clinicians was found to be very low (HA01_B, Senior Executive). One interviewee spoke about this conflict as a common feature throughout Australian hospitals, and reflected on how the culture had changed at the case site following the redesign program:

> *… as a registrar your job was to be a wall and not to let patients come through into the hospital, because you would keep trying to control your workload. And the emergency department would spend all day on the phone trying to get some medical team to admit the patient. It was – it's shameful…*
>
> *It's really interesting to see doctors come here as general medical registrars from other hospitals. It's like a complete shock to them that - our attitude towards taking patients from the emergency department or from other teams. They still have that idea that they should be minimising the amount of patients on their list... (HA03, Consultant Physician)*

The third principle stated that a ward's accountability and responsibility for the patient's care begins at the time of referral from the emergency department. This principle acts to prevent the common 'out of sight, out of mind' phenomenon, in which delays to treatment might be caused during a patient's transition and handover between the emergency department and the receiving ward. The fourth principle recognised the importance of a patient's treatment within the most clinically relevant ward or department rather than patients being posted as 'outliers' to wards that do not have the specialist expertise most relevant to their condition or diagnosis. Essentially, this prevented the temporary 'parking' of patients to inappropriate wards.

The fifth principle required that patients receive diagnostic investigations, consultations or interventions in the order in which requests were lodged, and in no longer than 24 hours from the time of request. This helped to prevent queue-jumping, competition and conflict between staff, and nurtured a greater sense of trust among peers and trust in the underlying processes of the hospital. The sixth principle required that patients be actively managed whilst in hospital, ensuring that they remain only for as long as is clinically necessary. This final principle might be described as a 'catch-all', signalling the organisation's overarching intolerance to delays in patient care.

The principles for TQC were developed over a two-year period, using a whole-of-organisation consensus decision making process, which was led from above yet activated from below:

> *…these principles, I can remember painstakingly for weeks on end discussing them. Were they right? Was each word right? Was the language right? And, we debated it*

> *for weeks, each one… as we went through the whole process. And, in the end there was a consensus. So, it was owned. (HA17, Senior Executive)*

In this way, the development of the TQC principles appears to be highly consistent with the theorised function of the discussion-consensus hive cycle. That is, in order to develop a set of principles that were intended to be enacted by every staff member of the organisation, it was necessary to invite the participation of all staff. Further, a genuine process of consensus was required, in which those who chose to participate were equally involved in the discussion and in contributing to the outcome, even to the extent of determining whether 'each word [*was*] right' (HA17, Senior Executive). At the time, however, the process of change was not necessarily easy or straightforward. To move from an agreement on principle to the active fulfilment of those principles through new practices and processes, required substantial negotiation and an initial 'leap of faith':

> *… it wasn't easy… it took a while for those principles to be bedded down and there was lots of argy-bargy around that and it took a while for us to actually take the plunge… it had to be a bit of a leap of faith. (HA07, Program Director)*

Having become increasingly adept at navigating the 'argy-bargy', the discussions, and the debates, the organisation appears to have adopted the TQC principles as the blueprint for ongoing improvement. In other words, after broad agreement on the principles had been achieved, the next step involved scrutinising the practices and processes operating at all levels of the organisation and, if processes were found to be inconsistent with the principles, this would pave a seemingly inevitable path for change:

> *… those principles are pretty broadly known across the organisation… down to the ward level and service level, clinicians will know what those are and by having those principles and agreement around those principles it's meant that we've got traction - agreement around the new processes and interventions to make those principles real living things… TQC has been a really instructive process. That's been the key driver for a lot of stuff for the organisation in the last couple of years. (HA07, Program Director)*

Several years on, the TQC principles continued to act as 'real living things' (HA07, Program Director). For example, staff operating at all levels of the organisation routinely review performance against the principles, both formally and informally, collectively coming to decisions about how to pursue further improvement:

> *... we have this TQC meeting every week where… [*senior executives*] and all the consultants and nurse managers meet and make decisions and every campus has to go through data about how your hospital performed, including how long ambulances waited, how many discharges… and all these long stays. Things that I never would*

> *have heard about 15 years ago. And be challenged on: '[*Ward X*] - you are down 20 discharges' and they'll say 'we had gastro' or something like that. 'Oh, okay'. You have to explain yourself and I think that is really good. It just keeps the foot on the pedal really. And then decisions come up there about improving… (HA11, Nurse Unit Manager)*
>
> *…you'll often hear language out there around - you know, about that's not in line with principle two or that's not in line with, you know - which is interesting I think. And, you know, we've gone through the last sort of probably two years where TQC, people are very attached to it… you asked me what it means and I just simply say to you that it's our way of working… we believe in timely, quality care and it… allows us to hold people to account - to have a conversation. (HA17, Senior Executive)*

These data excerpts provide a useful illustration of how, by the time of the maturation period, various hive attributes and hive cycles had come to operate as a synergetic whole. As above, weekly TQC meetings appear to incorporate: the information-action cycle (via the routine review of data for continuous improvement); aspects of the discussion-consensus cycle (as demonstrated through the breadth of invited attendees, and processes for group decision-making); and aspects of the consistency-flexibility cycle (e.g. individuals are encouraged to speak up, in a relatively non-threatening way, in order to provide a rationale for variations in performance).

Sitting beneath these processes is a set of corresponding attitudes and values (hive attributes) that support continuous improvement for patient care (the hive purpose). Where the hive purpose exists among staff, hive energy might be seen as the motivating force for both the TQC meeting itself, and the momentum with which decisions for improvement are subsequently enacted. Hive consciousness might arguably be in action through the sharing of knowledge and problem-solving responsibility between the meeting's broad hospital-wide membership. And importantly, the presence of hive belonging is indicated by the interviewee's positive attitude to presenting divisional performance data to a broad (predominantly senior) hospital-wide group and 'explaining yourself… [*which*] is really good' (HA11, Nurse Unit Manager). In contrast, a hospital culture in which there was little mutual trust between colleagues and organisational divisions, and in which individuals felt exposed to blame, may not have been conducive to open, frank outcomes-oriented discussion.

Thus, the whole-of-organisation TQC process appears to have triggered a large-scale cultural reckoning for the case site. The program enabled what might initially have been thought of as lofty ideals for altruistic patient care, to be embedded within the bedrock of attitudes that infuse every-day decisions and actions with the essence of the hive purpose.

6.3.5 Key development: group membership and the hive attributes

By the time of the maturation period Alfred Health had cultivated a series of important strategies for administering group membership, including the recruitment, management and completion (or termination) of staff members. There seemed to be a focus on monitoring the compatibility of staff (or potential staff) with the various cultural hive attributes present within the organisation. For instance, a senior nurse commented on how 'hard [*it is*] to find quality nurses that will fit into our culture here' (HA11, Nurse Unit Manager). The nurse gave the example of receiving around 30 applications for a registered nurse position, shortlisting 15 or 20 and 'often you only find three to four that you think 'yeah'… and [*after the interview process*] you might get one… it's challenging' (HA01, Nurse Unit Manager). Similarly, the strategy of recruiting for cultural fit was further emphasised by a senior executive:

> *…there is a selection process that means we select people that fit what we think we're looking for. So in that sense there's a… very specific bias in the selection to people who are able to work in a large organisation, [*and*] have a sense of how they will express themselves in a challenging and complex environment. (HA01_B, Senior Executive)*

Thus, screening for the cultural compatibility of a potential new group member appears to be an important process within the organisation. Further, it would appear as though this screening process might operate at a tacit level as well as an explicit human resource strategy. The excerpt above described the experience of finding a compatible recruit as thinking 'yeah' (HA11, Nurse Unit Manager). Although at first glance this deceptively simple call of judgement might appear casual, the onerous and 'challenging' recruitment process undertaken indicates that the recruiter's appraisal is far from flippant. Rather, as argued here, what is captured by the word 'yeah' may be a highly sophisticated, yet largely ineffable decision-making process on the degree of 'fit' between an individual and the organisation, especially when an assessment of cultural affinity is required. Interestingly, these granular recruitment decisions may relate more to an individual recruiter's nous, than something over which the leaders and managers of Alfred Health have a great deal of control.

Perhaps in contrast to this, the induction and orientation process appears to offer a more overt process, providing firm boundaries to a new staff member's cultural acclimatisation:

> *…if you sit in our orientation we'll tell you this is a hard place to work… high expectations… you're here for a reason because you want to be the best and… you*

> *now are part of the best… that's not always for everyone. And, it doesn't drop off… the sustainability and the energy and the drive… (HA17, Senior Executive)*

The process of acculturation also appears to be managed as an ongoing process. For instance, a senior clinician spoke about the way in which leaders and managers 'really champion enthusiasm and innovation', 'actively seeking people' and 'rewarding' them for their efforts to change attitudes and practices and spread these changes throughout the organisation (HA03, Consultant Physician). For instance:

> *…[*management*] wouldn't give someone a job, a promotion, just because they've done their time… if you want to get involved… they have their arms open, it's like, 'Come and help us. Our doors are open. Our meetings are open. We want to hear what you've got to say.' (HA03, Consultant Physician)*

The interviewee emphasised the importance of this type of managerial support, as it 'empowers people who are interested' (HA03, Consultant Physician).

The degree to which prospective staff members 'self-select' to fit the Alfred Health culture is also another important consideration. For example, the Alfred Health reputation among Victorian nurses as a 'fast paced' environment that required 'hard work' (HA17, Senior Executive) seemed to influence the sort of people who applied for positions at the organisation (HA11, Nurse Unit Manager). This may either influence recruitment efforts positively, by attracting the 'right' people, or negatively, by reducing the overall pool of applicants. As noted by a Senior Executive:

> *People are wary of Alfred Health because there is this sort of assumption of arrogance...* [As observed by a new colleague who has] *been here about six months… she can't believe how cooperative… the culture is… absolute support and cooperation… she's now trying to get people she knows from other health services to come and work here. They're saying, "Oh no. I wouldn't like to work at a scary place, it's too hard, they expect too much". She's saying, "No that's not true"… it's really unique to be in a place where the level of trust between senior people is so high." (HA015, Senior Executive)*

Issues of staff turnover were cited as problematic for maintaining the hive attributes (HA11, Nurse Unit Manager; HA15_B, Senior Executive). In some areas of the organisation (as is customary within the sector) staff turnover was high, although a regular recruiter commented that those who left often did so with a heavy heart: '…anyone you talk to you that leaves… [*says*] 'I love it here [*but*]… I've moved… we got married… I'll probably be back one day' (HA11, Nurse Unit Manager). Other interviewees spoke about more deliberate (historical) strategies to 'clear the dead wood', where a shift in workplace culture was deemed necessary:

> *…[*in the late 1990s*] I came at the very beginning of a transition and a performance management of… [*many medical and nursing staff of our unit*]… The previous nurse manager… was performance-managed out of the organisation… the nursing EFT was extremely lean… so I did a lot of recruitment… I introduced… interdisciplinary team meetings about patient journeys and about patient management… The previous regime of [*clinicians*]… thought it was a joke to do that sort of stuff… So I did a lot of… restructuring but in a positive way… It took at least five years to recruit and to retain. To impart my leadership method and to develop my leadership team. You know those things don't happen overnight but if you stick around long enough people learn from you and learn what your values are. (HA12, Nurse Unit Manager)*

Similarly, another interviewee noted the tendency for natural attrition during times of change, specifically citing the example of 'Hospital in the Home' (as introduced in Chapter 7, Section 7.1.1.2): 'A couple of people left, they didn't like it [*the new workflow arrangements*]…' (HA15, Senior Executive).

Lastly, one interviewee suggested that the cultural changes that occurred at Alfred Health were reflective of broader societal change. 'Everybody has… changed; not just nursing. Not just the hospital… times have changed and it's similar when you go into any sort of employment. It's different now than 20 years ago... we are… more on an even playing field' (HA01, Nurse Unit Manager). The organisation's capacity to adapt to these changes, perhaps through the use of the hive attributes and cycles, may provide an explanation as to why Alfred Health's performance trajectory was so positive.

6.3.6 Maturation as a process rather than a destination

Despite the many achievements, interviewees were quick to point to areas in which further improvements or developments would ideally take place. Some interviewees spoke about areas in which particular clinical services or clinical/administrative processes could be improved (HA01, Senior Executive; HA02, Program Director; HA04, Program Director). For instance, one interviewee spoke about 'want[*ing*] to see one handover document' in use, organisation-wide, stating that:

> *…we're dealing with one patient. There may be a few things that are particular to nursing… [*or*] medicine, but generally speaking they sync together for the betterment and improvement of that patient, and therefore there should be one handover sheet… [*and*] that should form part of the medical record, which is our plan eventually… (HA09, Program Director)*

Further, interviewees spoke frequently about communication as a common area in which problems might arise or important items could 'fall down the cracks' (HA02, Program Director).

> *…every time we get… a recommendation from a bad outcome in court, we look at… [*our clinical*] guidelines and then we look at the recommendations and nine times out of 10 we've already got a guideline for the recommendation - it just wasn't followed. So we say 'we don't need... [*another guideline*]… it was a communication error' so the solution is that you go back and educate the people about [*it*]… People don't follow guidelines for a whole amount of reasons… they were too busy… they were too tired… they didn't want to ring up the senior person and bother them at night. So we have a lot of these communication defects… (HA02, Program Director)*

This indicates the existence of 'communication defects', however it also demonstrates that the organisation responds pro-actively when problems of communication are identified. In contrast, one interviewee suggested that routines of discussion were not as equitable as they ought to be: 'we introduce changes from the top, but we don't encourage feedback from the bottom… we don't listen to the [*medical*] residents necessarily' (HA09, Program Director). And another interviewee spoke about needing to become better at harnessing the energy and motivation of the workforce 'we have thousands of people who love to improve… they answer that question in the surveys… do we do enough with it? No, but we're getting better…' (HA15, Senior Executive).

Data excerpts such as these were a small minority across the dataset; however, they do help to illuminate the nature of maturation as an ongoing process, rather than suggesting that Alfred Health had reached a static, 'matured' state in which there was no further need for improvement. The maturation that is described here, is as much about the ongoing *capacity* to improve as the outcomes of efforts for improvement. In other words, maturation is not a synonym for performance perfection, rather it is the capacity to recognise what needs to be improved and then efficiently and effectively move towards a state of (real or imagined) improvement.

6.4 SLOWER SHIFTS: THE PASSAGE OF TIME FROM THE 1980S TO 2018

Reflections on the passage of time, and the broader (and slower) demographic, social and cultural shifts that had taken place since the 1990s also featured within interview data as important explanations for changes at the case site. The challenge, however, is pinpointing precisely how and when the shifting sands of broader societal change may have affected the case site. It is for this reason that these data are presented separately from previous analyses.

A prominent observation by interviewees (as supported by documentary evidence), was the steady increase in demand for acute hospital services, subsequent rising costs of care, and the increasing complexity of clinical cases:

> *…for probably the last 15-20 years it's become…so [much] busier. It's busier and it's more acute. You know you are getting more patients now on the wards that, 15-20 years ago, would have been in ICU… the acuity has picked up. (HA11, Nurse Unit Manager).*

This higher level of acuity and complexity, appears to have had important consequences for the way in which routine work was organised and re-organised to suit the changing circumstances. Whereas Nurse Unit Managers may have been able to act as a centralised authority with clinical reach and oversight across all parts of the ward, this was increasingly unrealistic:

> *There was a lot more complexity around the organisation… where in the past I could have been overseeing everything. I couldn't do that and I recognised that. (HA08, Program Director).*

In response to this dilemma the case site introduced several workforce innovations, including the creation of far larger wards in which small teams of nurses took responsibility for the care of patient groups or groupings (HA08, Program Director). As recalled by one Nurse Unit Manager, the nursing role became increasingly 'holistic', which appeared to have a positive effect upon motivation (hive energy), and hive consciousness and hive belonging:

> *…when I started, it was so different because your job was not holistic when I started. As a junior nurse all I did was wash patients. And then when I was a senior nurse all I did was give out tablets. But now, it's so holistic. You do everything. You are responsible for those four patients for eight hours, with support of course. But I think it is really rewarding… Especially on a ward like ours that have very heavy patients. With the stroke and gastro patients, that can be very confused and all that, to stay… [working here] you've got to really be committed to it. And the nurses that I work with are amazing. So, it makes a big difference. (HA11, Nurse Unit Manager)*

The interviewee went on to reflect on the nature of the Nurse Unit Manager position, commenting that the role was 'much more involved', with a focus on being at the clinical coalface alongside registered and enrolled nurses. It was a matter of: '… just being one of the team rather than hierarchical… it's that mutual respect which I don't think was there 15 years ago' (HA11, Nurse Unit Manager). The interviewee also reflected on the nature of interprofessional relationships having shifted during this period, particularly their becoming increasingly egalitarian:

> *It's different now than 20 years ago. I think we are just more on an even playing field with medical as well… you know with consultants and all that, we would never really talk to them. It's just that culture of how it used to be. Whereas now… you just chat to anyone and everyone. We are all here for the same reason. (HA11, Nurse Unit Manager)*

Member-checking interviews reinforced this sentiment, however also observed that it may be more socially permissible for nurses to 'chat with anyone and everyone', and as such, respectfully challenge doctors, as opposed to the reverse situation in which doctors might challenge nurses (HA01_B, Senior Executive). This could be viewed as belonging to a broader societal shift in which a re-balancing may have been taking place, placing greater value on the profession of nursing within hospital care, and a move to challenge gender inequality, given the predominantly female workforce employed within nursing.

There also appears to have been some broader societal and sector-level shifts regarding the way in which hospital care more broadly was conceived and understood. A greater emphasis on hospital performance, both financially (HA17, Senior Executive) and regarding the safety and quality of care, seems to have taken hold over the period of study. As reflected by one interviewee, the organisation took proactive steps to embrace this call for greater accountability and transparency regarding safe and high-quality care:

> *In terms of quality and safety, the driver, good, bad or otherwise, we have a lot of information… In the last few years, we've become more sophisticated so there's an organisational dashboard and it's on the website and our CEO is from the UK so he's very much about publishing your data. So we had the organisational dashboard which includes access, quality, safety… We've got some workforce indicators on it as well. It's been going out more publicly and we've got program level dashboards… So there's again transparency in data and then some accountability in terms of reporting systems around that. So I think that's how the organisation has matured over the years. (HA05, Senior Executive).*

6.5 CONCLUSION

The first research question asks: what were the factors and contextual conditions that gave rise to Alfred Health's high performance and sustained performance improvement? Chapter 5 examined the *factors* that appear to be important to performance and the capacity for ongoing performance improvement. This chapter then synthesised these theoretical insights, examining the relationship between *contextual conditions* (events), and the key developments (including strategic actions) that took place at Alfred Health. Analysis pointed to a number of prominent events that influenced the development of the organisation,

including various changes and reform measures imposed by government, an organisational 'near-death experience', and various leadership changes and structural re-organisation/s. An important discovery of the analysis was that the organisational capabilities for performance improvement (the hive attributes and cycles) arose in different periods of time, and in response to different sets of contextual conditions and strategies. To summarise, it appears as though (broadly speaking) hive energy and the information-cycle emerged and matured first, followed by hive consciousness and the discussion-consensus cycle, and lastly, hive belonging and the consistency-flexibility cycle.

The next chapter builds upon the data presented here, to undertake a far deeper exploration of findings: examining the 'how' and 'why' of performance outcomes at Alfred Health, as per research question two. This exploration culminates in the development and presentation of a set of inferences as to the causal mechanisms underpinning the performance trajectory of Alfred Health.

7 TIME AND POWER: TEMPORAL MECHANISMS AND THE SPECTRUM OF CONTROL

> *When a honeybee swarm chooses its future home, it practices the form of democracy known as direct democracy, in which individuals within a community who choose to participate in its decision making do so personally rather than through representatives… [*Importantly*] the scouts in a bee swarm have common interests (e.g., all want to choose the best available homesite) and they reach decisions by building a consensus… each decision about a future course of action reflects the contributions, freely given and equally weighted, of several hundred individuals. In other words, the control of the group's actions is distributed among many of its members rather than concentrated in a few leaders… [*and*] because hundreds of individuals are full participants, the group can acquire and process information from multiple sources simultaneously… [*and*] the way the group selects its course of future action is by staging an open competition among the proposed alternatives…*
>
> *— Thomas D. Seeley (2010)*

Whereas the previous chapter sought to understand the developmental significance of key events, environmental shifts and the dynamic interplay between these elements and organisational capacity for improvement, this chapter delves into the deeper questions of how and why this was so. That is, there is a difference between listing the key factors and conditions that contribute to a particular outcome (the 'shopping list' (Pettigrew 1985, p. 23)), and understanding the underlying mechanisms at play. What combinations of factors and conditions, unfolding in which order, and culminating at which critical moment, brought about the observed outcome? Beyond the list of factors and conditions, the aim is to decipher the particular interaction of elements that worked for Alfred Health, specific to particular periods and moments in time. A second focus for this chapter is the extent to which individuals or groups were able to influence the development of performance improvement capabilities, and therefore exert influence over performance itself. To what degree did performance improvement come about due to leaders deliberate use of strategy, their capacity for control, or their more subtle use of influence?

The chapter is structured in two relatively distinct sections. The first part draws directly from the findings of Chapter 6, taking an interpretive leap and delving into the possible temporal mechanisms that might explain the evolution of performance success at Alfred Health. The second part examines and proposes possible mechanisms of individual agency, control and influence.

7.1 TEMPORAL MECHANISMS: THE EVOLUTION OF A HIGH PERFORMING HOSPITAL

When trying to understand a process, the notion of *time* is closely associated with that of *timing*. Whereas time relates to the seemingly objective (yet ostensibly subjective) experience of the interval separating successive events (Oxford English Dictionary 2010), timing refers to the active exploitation of that interval so as to maximise the likelihood of achieving one's aims (Oxford English Dictionary 2010). This process of exploitation entails a person (or persons) making a judgement as to the 'correct' timing for a particular action. Furthermore, the basis for this judgement is a conscious or unconscious assessment of contextual conditions: their historical and likely future trajectories; the potential combinations and re-combinations between various factors and conditions; and their social significance, meaning and possible effects. Understanding the continual exchange between temporal conditions and the judgements and decisions of agents, is therefore key to an understanding of the broader causal mechanisms at play.

This section of the chapter presents a series of theoretical propositions, describing the sorts of temporal mechanisms that may have been responsible for Alfred Health's increased capacity for performance improvement and subsequent performance outcomes. The mechanisms described and proposed in this section begin to unpick the patterns among contextual conditions as traced over time by documentary and interview source analysis. In essence, these descriptions seek to highlight what 'ripe' conditions might have looked like for the improvement of Alfred Health's performance. This also provides a useful introduction to the subsequent discussion on mechanisms of agency and power presented in the second part of this chapter – connecting the conditions for improvement to how the timing of these various conditions appears to have been responded to or actively exploited by agents within the organisation.

7.1.1 Sequential steps – an evolutionary model

Proposition 2A: Evolutionary Steps

The development of hive attributes and cyclic routines unfolded in several evolutionary steps. Broadly, the process began with hive energy and the information-action cycle, followed by the consolidation of hive consciousness and the discussion-consensus cycle, and finally, the maturation of hive belonging and the consistency-flexibility cycle.

7.1.1.1 Evolutionary steps

Evidence from documentary and interview data (presented in Chapter 6) suggests that some hive attributes and cyclic routines were more (or less) prominent within the various periods under review: survival (1989-1997), resurgence (1997-2009) and maturation (2009 to 2018). Loosely-speaking: step one (survival) encompassed a rapid increase of hive energy and the development of the information-action cycle; step two (resurgence) was characterised by the addition of hive consciousness, the discussion-consensus cycle, and the early emergence of hive purpose; and step three (maturation) built upon this foundation, to consolidate hive belonging, hive purpose and the consistency-flexibility cycle.[24] It is argued here, that the sequence with which these attributes and cycles unfolded and developed was causally significant.[25] However, as explained later, this is not to suggest that the sequence adhered to a linear model of causation.

Figure 13 and Figure 14 illustrate these sequential developments as cumulative yet non-discrete (dynamic, somewhat vacillating, partially overlapping and mutually reinforcing) evolutionary steps. Further, Figure 13 and Figure 14 illustrate the overlapping development of hive attributes and cycles by using a lighter shade to indicate where a hive attribute or cycle

[24] It is suggested that the opportunity-scouting and threat-insulation routines were more stable in their development, having been partially evident in the survival period and consolidated (and sustained) from the resurgence period onwards.

[25] The word 'significant' is not used to indicate statistical significance.

appeared to be at an early stage of development, whilst another attribute or cycle may have been further established. The darker shade indicates a more consolidated stage of development, and for current purposes, delineates an 'evolutionary step' as opposed to the initial stirrings or beginnings of an attribute or cycle.

It should be noted that, to present this information diagrammatically, simplification (or perhaps, over-simplification) was necessary. Consistent with the critical realist and complexity perspectives, Figure 13 and Figure 14 are therefore intended as theoretical and illustrative approximates, rather than categorical representations of reality.

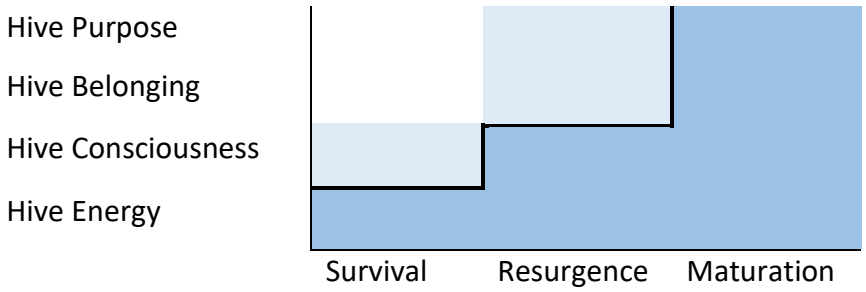

Figure 13 Evolutionary steps in the development of hive attributes

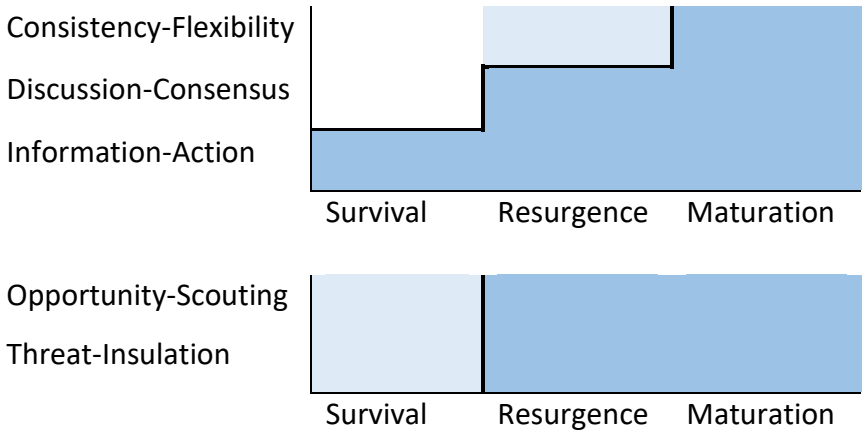

Figure 14 Evolutionary steps in the development of hive cycles

7.1.1.2 Non-linearity

Proposition 2B: Non-Linear Evolutionary Steps

The evolutionary process that brought about the development of the hive attributes and cycles is more accurately described by a non-linear model of causality in contrast to more traditional linear models of causality.

It is useful to describe the evolutionary steps in 'fuzzy' rather than 'crisp' terms.[26] In other words, although data analysis suggests that various hive attributes and cycles appear to have unfolded in progressive stages, these stages also appear to be dynamic, cumulative, partially-overlapping, and mutually reinforcing, thus defying a simple linear explanation (see footnote for a brief explanation of linear and non-linear causality).[27]

For instance, unlike binary systems in which an element is either present or not present, the hive attributes and cycles have often emerged from modest beginnings, unfolding, perhaps vacillating, and developing over time. For instance, the information-action cycle developed slowly and steadily from the late 1980s to later become 'like bread and butter to

[26] Crisp logic refers to a form of problem solving that requires a statement or proposition to belong to one category or another, for example 'true' or 'false'. Fuzzy logic, on the other hand, may consider propositions that have degrees of category membership, for example, identifying the degree to which a statement is true or false.

[27] According to systems and complexity science, notions of linear causality rely upon four basic premises: 1) unidirectionality (i.e. a unidirectional unfolding of causes and their effects); 2) uniqueness and necessity (i.e. that the same cause will, predictably, lead to the same effect); 3) proportionality (i.e. that a relationship exists between the proportion of volume of a cause and the effect, in such a way that remains constant over time); and 4) additivity (i.e. in cases in which two causes produce an effect, those causes are independent of each other and thus act in isolation as opposed to interaction).

In contrast, understandings of non-linear causality rely predominantly on the concept of feedback – that is, that a cause can create an effect, but equally, this effect is also able to influence the original causal condition, thus, potentially producing a new or different effect, and so on. In opposition to the principles of linear causality, non-linear causality is described to operate: 1) disproportionality (i.e. the butterfly effect – that the size of the effect is not related to the proportion of the cause); 2) via multiple causes; 3) via upwards or downward causal flows (or both); 4) indeterministically (i.e. that, due to simultaneous and continually changing flows of both upward and downward causation, an effect is not necessarily determined by a cause. In other words, a condition or set of conditions may or may not bring about a given effect, at a given time or context); 5) via equifinality (i.e. a single cause can have many effects, or alternatively, a particular outcome may be brought about via a number of different causal pathways); and 6) via reverse causation (i.e. that cause and effect relationships are not unidirectional, as described above) (Abbott 1988; Bergmann Lichtenstein 2000; Gorski 2015; Mahoney 2000; Meyer, Gaba & Colwell 2005).

this place' (HA01_B, Senior Executive). Similarly, the early beginnings of hive purpose were evident during the resurgence period and progressively developed throughout the 2000s. In contrast, however, some attributes or cycles appear to have developed rapidly or surged in response to an external pressure or event. For instance, hive energy (which data would suggest may already have been present in the late 1980s) rapidly increased in response to the threat of closure in the early 1990s, and subsequently remained at a relatively high level thereafter.

The evolutionary steps do not describe the sort of progression in which causal conditions operated independently, or in which one step was fully achieved or completed before another was begun. The initial activation or emergence of one hive attribute often coincided and interacted with the emergence, consolidation or maturation of another. In some cases, hive attributes and cycles appear to have qualitative differences depending upon the period of observation. For example, in the early 2000s hive consciousness was largely externally facing: it involved an expanded awareness of organisational performance in order to ensure the organisation's survival against external threats. In contrast, following the structural reorganisation of the early 2010s, hive consciousness became more internally facing, primarily motivated by the fulfillment of the hive purpose (patient care) rather than organisational survival. It is plausible then, to suggest that the emergence, evolution and maturation of each hive attribute and cycle was (to a greater or lesser degree) mutually dependent upon the development of other attributes or cycles, and further, that the sequence in which these developments unfolded was influential upon the outcome.

It is also important to understand that hive factors are not static and homogenous achievements, but under certain conditions they may display resilience, adaption, they may decline, or they may vacillate between all three. A useful example is the Hospital in the Home (HITH) restructure project of the mid-2010s. As described by a senior executive staff member (HA15), the project had initially been conceived as a straightforward restructure and process redesign (information-action) project, in which identified process-level waste (time and resources) would be eliminated through the introduction of more efficient workflows. These efficiencies required major changes in procedure for staff members, and, in turn cultural and attitudinal shifts for those staff members affected. However, the narrow and overly technical (rather than relational) project scope resulted in misunderstanding and escalating conflict:

*The Alfred began this process with HITH of restructuring and the union went crazy… it broke the rules of how you do major change…. Then within about six weeks, [*there was a*] huge amount of industrial action. There was lots and lots of trouble…*

So they paused… the OD unit said, okay… 'this is a big piece of work… it'll take 12 months… you've got to do this deep consultation. You've got to do a co-design with the staff and then you've got to implement it'…

…we started this journey… it was an action learning framework, which was at the front end talking to everybody about the role of HITH and doing a sort of visioning process with them… then they worked in small groups… the main game was, what sort of place is this going to be? What are we on about here? What is our purpose? Our purpose is to provide excellent care at home and to create a happy, respectful workplace.

…A lot of the teams worked on… how they were going to… develop respectful behaviours effectively. The critical point happened about two months in where they started calling out each other's behaviour. That's the first sign of a change in behaviour, when peers start holding each other to account…

*…A couple of people left, they didn't like it… 12 months [*later*]… that's the team people want to work in now, it's a really happy team. But it takes that long… processes were changed, systems were changed, we got a new workflow around how work is allocated, how they supported each other on the road, how they touched in at the beginning of the day and the end of the day, what the expectations were of leadership and so on. (HA15, Senior Executive)*

The HITH project provides useful insights into the way in which, in the context of a local work environment where various hive attributes appeared not to exist (even if they existed more broadly in other areas of the organisation), the introduction of the discussion-consensus cycle was able to elicit and nurture various desirable cultural attributes. In early stages of the HITH project there appeared to be no shared vision or purpose (hive purpose), substantial resistance to change (lacking hive energy and hive consciousness), and very little trust between staff and managers, and amongst clinical staff members (hive belonging). Additionally, the information-action cycle alone was insufficient, and in fact, appeared to be detrimental to the hive attributes given the scale and complexity of the planned change. However, after staff members were invited to be part of the discussion and design of the redesigned service, including participation in forming a collective vision and values for group behaviour via consensus; over time, various hive attributes emerged and developed. This supports the view that the hive attributes and cycles are far from static achievements; rather, they may vacillate depending upon circumstances of time or various localised parts of the organisation in which these attributes may not be as present or strong.

Sequence and path dependence

Proposition 2C: Evolutionary Steps and the Path-Dependency of Trust

The development of hive attributes and cyclic routines occurred through a process of path-dependent evolutionary steps. Thus, the sequence in which the steps unfolded was causally significant. At a latent level, the organisation's evolutionary development was causally attributable to the increasing presence of trust which was developed through a series of collective lessons:

- First, group members learned to **think and act** as a group, via an increase in hive energy and the early emergence of hive consciousness, and through the increasing use of the information-action cycle;
- Second, building upon the capacity to think and act, the group learned to **think and feel** together, via consolidation of hive consciousness, the emergence of hive belonging, and the use and refinement of the discussion-consensus cycle; and
- Third, in addition to thinking and acting, and thinking and feeling as a group, group members achieved the capacity to **feel and act**, via the maturation of hive belonging and hive purpose, and through the coming together of the consistency-flexibility cycle.

It is proposed here that the hive attributes and cycles developed in sequential evolutionary steps rather than unfolding in random or coincidental order. Whereas the fundamental premises of linear causality do not recognise the importance of multi-event and multi-factor (historical) sequence (Abbott 1988),[28] the interpretive and theoretical leap taken here suggests otherwise.

[28] In Abbott's article on 'Transcending General Linear Reality' published in 1988, the author identifies linear thinking as being in opposition to causal sequence. Linear thinking relies upon the assumption that it is the stimuli itself that causes an effect, rather than recognising that an interaction between the stimuli and other conditions and factors may have produced the result, and that depending upon the order in which these factors interacted, a different result may ensue despite the presence of that stimuli. To accept that sequence is causally

Evidence from documentary and interview analysis has mapped the chain of events that unfolded (the sequence) at Alfred Health from the late 1980s to the late 2010s; however, in order to establish and explain why this sequence was causally significant (i.e. to identify the underlying causal mechanism) a degree of theoretical speculation is necessary. Thus, a key theoretical proposition of this study suggests that the organisation needed to: first, learn to think and act as a group; second, to think and feel as a group; and third, to feel and act as a group. Importantly, as argued here, the effects of these lessons were cumulative, and facilitated the continued development of organisational capacity for performance improvement. As such, each lesson paved the way for subsequent lessons, and ultimately, the ongoing improvement of performance.

Figure 16 and Figure 17 redescribe the evolutionary steps using the 'think', 'act' and 'feel' theoretical frames. The frames themselves were included in the diagrammatic hive model presented in Chapter 5 (reproduced below as Figure 15). Alongside the use of words 'think', 'act' and 'feel' within the diagram, the colour blue was used to correspond with 'thinking' attributes and 'thinking' components of hive cycles; the colour green was used to correspond with 'active' attributes and 'active' components of hive cycles; and the colour yellow was used to correspond with 'feeling' attributes and 'feeling' components of hive cycles. Essentially, 'think' speaks to the expansion of hive consciousness, 'act' to the application of hive energy, and 'feel' to the collective experience of hive belonging. It is suggested here (and examined in detail below) that the hive cycles operate as a unique combination of thinking, acting or feeling and, as indicated by colour, that the components of the hive cycles correspond directly to particular hive attributes.

significant, requires a broader ontological and epistemological acceptance of the notion of multi-factor interaction.

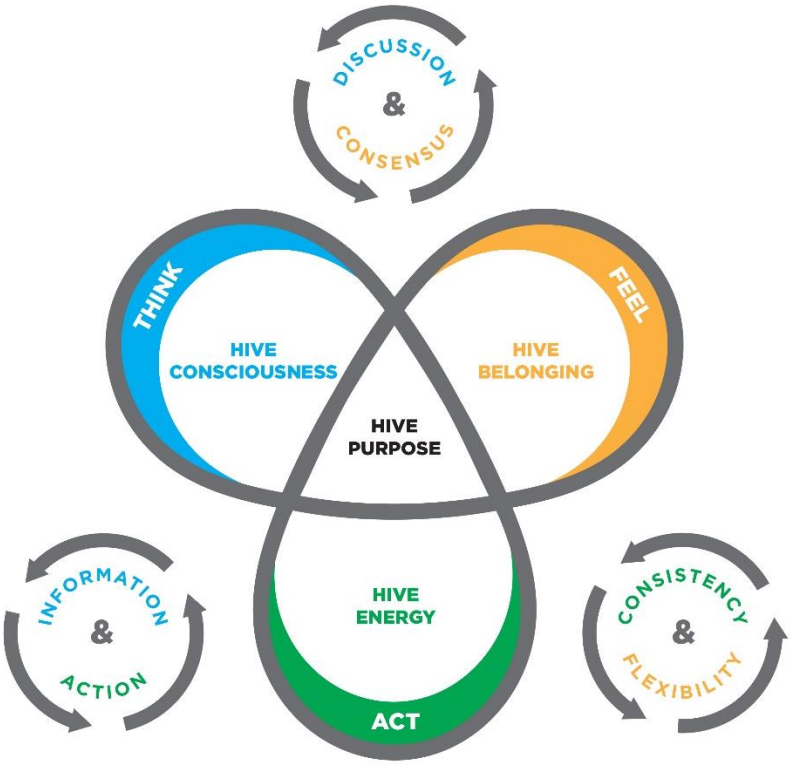

Figure 15 Hive attributes and hive cycles
(colours blue, green and yellow indicate correspondence between hive attributes and components of the hive cycles)

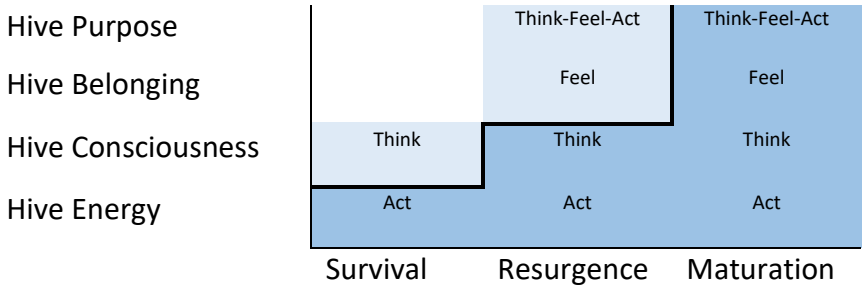

Figure 16 Evolutionary steps in the development of hive attributes

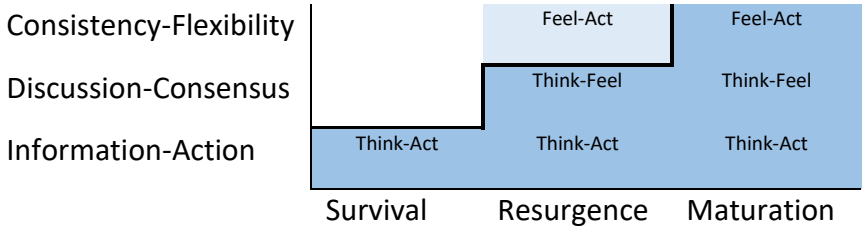

Figure 17 Evolutionary steps in the development of hive cycles

7.1.1.3 Thinking and acting as a group

The rapid increase in hive energy and the initial emergence of hive consciousness in the mid-1990s contributed to a set of ripe conditions for the development of the information-action cycle. Fundamentally, the hive cycle arose as a mechanism to facilitate data-led group problem solving, solution testing, solution refinement and problem resolution. The cycle can be described as a relatively transactional process – targeting known issues or opportunities, often at a local, project-level, rather than targeting broader or more complex decisions for change.

Thus, from an environment of external pressure and threat arose group-level energy and enthusiasm for change; in turn, those enthused for change demanded accurate information for decision-making. From increased information arose a broader scope of understanding, and an expanded consciousness; and from this new consciousness, collective action towards change and improvement. This is, of course, a radically simplified account of the process of development. Despite this, describing the sequence in this way may offer some insight into the interaction between conditions that were present and emergent, and the interactive dependencies necessary for their evolution.

The argument presented here asserts that this initial collective 'thinking and acting' evolutionary step during the survival period (late 1980s to mid-1990s) became a necessary foundation for the development of subsequent hive attributes and cycles. As argued here, it emerged (and was subsequently developed and refined) as both a technical and relational mechanism for group-level cognition and group-level action. As the cyclic routine for information-action was practised, refined and became more entrenched, technical structures like governance and problem-solving processes formed and were strengthened to support the cycle. So too, relational structures including tacit-level (cultural) attitudes and expectations surrounding the process emerged.

Thus, the cyclic process itself acted as a vehicle for the group's capacity to think and act collectively. Alongside this, the technical and relational structures that formed around the cyclic process allowed group members to develop an increasing level of trust in the process – therefore reinforcing, sustaining and entrenching its use in everyday practice. As will be proposed in the next section, the sense of burgeoning trust in both the technical (process-related) and relational (tacit, attitudinal) structures surrounding the information-

action cycle fostered the conditions necessary for subsequent hive attributes and cycles to emerge.

7.1.1.4 Thinking and feeling as a group

Having established a solid capacity for data-driven problem solving, Alfred Health extended this capacity to form a new cyclic routine: discussion-consensus. Whereas the information-action cycle provided a useful mechanism for resolving smaller, technical problems (e.g. financial controls, quality audits, process reviews, benchmarking, the introduction of new evidence-based practice or technical/technological innovations), the discussion-consensus process helped tackle larger, more complex problems or opportunities, often bringing together a very diverse set of group-members towards a decision of strategic significance.

This is not to say that the discussion-consensus cycle superseded information-action; rather, the two had distinct roles that worked in tandem for major change. For problems with relatively straightforward data-based processes for resolution, the discussion-consensus cycle might be employed first to reach a collective decision, and followed by one or more cycles of information-action in order to implement the solution at more granular and localised levels. Or, the two cycles may indeed need to progress hand in hand, drawing on data at an initial stage, undergoing a collective consensus process, and subsequently putting the resulting decision into action.

The discussion-consensus cycle arose in the context of established hive energy, the consolidation of hive consciousness and, importantly, the initial emergence of both hive purpose and hive belonging. The late 1990s and early 2000s was a time in which State Government reforms provided renewed autonomy to hospitals and their leaders (as opposed to larger centralised network structures) and the organisation embarked on a bold process of growth: largely reliant on reputational reinvention, eliciting large donations and making capital and research investments. Internal to the organisation, new leaders of Alfred Health cultivated a fresh vision and set of values, which helped to trigger and drive a greater sense of belonging and collective purpose amongst staff.

Significantly, it was also a time in which group members had become accustomed to the process of improvement via the information-action cycle and had already established trust in the efficacy of this process. To extend beyond the process by introducing a 'feeling' element allowed the organisation to examine, challenge, test and advance cultural and relational

facets of the organisation, alongside the more concrete and technical realm of information-action. As described by interviewees, the discussion-consensus cycle often involved staff talking through their fears together, before a consensus-based resolution was formed:

> *…what they [*senior management*] did really well was to make sure that all of the ground staff felt that they had an opportunity to be heard, all their fears, because everyone was so scared. They thought all the patients are going to die if they have to be sent up to the ward within four hours. So they made sure that their fears were – that their opinions and fears… were heard, and understood, and attended to. (HA03, Consultant Physician)*

As such, group members were invited to become creators of new and better ways of doing things, rather than simply facilitators of technical advancement. Becoming well-practised in using the information-action cycle is likely to have helped generate sufficient trust in the process of change to allow group members to openly air their feelings and to contribute to a genuine process of discussion and consensus. Thus, building upon a foundation of group-level energy for organisation-wide performance improvement, a growing sense of belonging and group purpose, and collective trust in the process of improvement, the organisation learned to think and feel together.

7.1.1.5 Feeling and acting as a group (and individually)

In the maturation period (late 2000s and 2010s) the organisation achieved a balance between consistency and flexibility. The group was able to coordinate their work in highly consistent ways, at the same time as individuals were able to question or break away from these consistent practices if adherence to the overarching hive purpose necessitated this. These instances of flexibility were then fed back to the group (either as a new idea, a suggestion for policy change, or as a new practice to be adopted and spread), thus closing the cyclic loop. That is, instances of flexibility were used to create new group-level consistencies. In this sense, group members learned to act as a group, and, at the individual level, flexibly 'feel out' various areas that required refinements or changes to group-level behaviour. It is argued here that a very high level of trust was necessary in order for individual group members to feel sufficiently confident to speak out or break away from normalised practices. The level of trust that was established as a result of routine information-action and discussion-consensus cycles may have provided a strong foundation upon which the consistency-flexibility cycle was able to emerge and thrive.

Although both consistency and flexibility had been present before this time,[29] the maturation period provides the first evidence of a harmonious balance and cyclic exchange between the two. If there had been more emphasis on consistency at the expense of flexibility (at both the group and individual levels), this would have likely led to process rigidity, a dampening of innovation and improvement, and perhaps introduced a higher level of clinical error. An example might be, if a clinical staff member was to adhere closely to a checklist but fail to observe a clinical symptom or process error, due to it being technically out of scope for that checklist tool. Rather, an individual must use the guidance of clinical tools alongside a degree of agency in forming clinical or other judgements in order to ensure that the peculiarities of each clinical presentation are taken into account, and to strike an appropriate balance between consistency and autonomous flexibility. In other words, it is dangerous for hospital staff to use policies, procedures and tools of consistency in robotic or mechanistic ways.

Alternatively, if the organisation were to have placed greater emphasis on flexibility and autonomy at the expense of consistency, this might lead to poor clinical standardisation (whereby some patients may receive recommended evidence-based care, and others may not), and at a broader level, a disintegration between various parts of the organisation. For instance, different wards might develop unique policies and procedures to prevent hospital acquired infections, which might make it difficult to prevent infections hospital-wide given variation in procedure, and second, may lead to confusion, miscommunication and ultimately, non-compliance for those staff who are regularly moved between wards (e.g. junior doctors) or temporary (agency) nursing staff.

It is proposed here that the presence of hive purpose and hive belonging were essential to achieving the balance between these somewhat opposing tendencies: consistency and flexibility. Having spent two years during the mid the 2010s involving all staff in the development of organisation-wide principles for TQC, Alfred Health had gone beyond the construction of a set of corporate values. Rather (as presented in Chapter 5), during this two-year period the TQC principles had been internalised by individual staff members,

[29] For instance, policies and procedures for consistent clinical practice have been commonplace in hospitals for hundreds of years; and during the resurgence era, organisational decentralisation brought about a high degree of autonomy and flexibility to campuses and administrative units of the hospital.

forming a strong and cohesive hive purpose. These internalised principles then formed the basis for individual decisions as to whether to adhere to a standardised practice, or whether to vary more flexibly from that practice.

The 'litmus test' for decisions, in various contexts, micro or macro, and at various levels of seniority, became: 'does practice X adequately fulfil the hive purpose?'. In the event that the answer is 'no', a sufficient level of hive belonging (trust) must be present in order for an individual to feel comfortable varying from policy, and/or in raising the issue with the group. Therefore, as argued here, hive purpose and hive belonging provided the necessary conditions for the organisation to have learned to feel and act as a group, and to feel and act individually (e.g. with respect for clinical judgement) within the scope of social freedoms permitted by that group.

7.1.2 The path dependency of trust

It is argued here that the organisation's evolutionary development was causally attributable to the increasing presence of trust throughout each of the periods of organisational development: survival; resurgence; and maturation. It is perhaps useful to view intra-organisational trust as belonging to a graded continuum, rather than a 'present' or 'not present' binary.

The underlying mechanism for the ongoing growth in trust might be described as a positive feedback loop. For instance, the presence of a little trust might have been necessary in order for subsequent gestures of vulnerability to have been palatable to staff, which, in turn, may have continued to increase the overall level of trust among staff. With greater levels of trust, Alfred Health seems to have been able to accomplish things that otherwise may not have been possible. For example, one interviewee reflected on how certain interventions (i.e. TQC) may not have been possible had they been introduced earlier, because they would have incited 'suspicion' (a lack of trust):

> *…[The program] would have been challenged… I don't think they would have been willing to have emplored the concepts of what TQC is… TQC has great representation from nurse leaders as well as medical leaders, whereas back 16 years ago I think the medical leaders would have been very suspicious of 'what's the organisation trying to do?'… the feeling now is completely different to what it was back then, completely different. (HA12, Nurse Unit Manager)*

7.2 A NEW WORLDVIEW: MECHANISMS OF COLLECTIVE AGENCY

The purpose of this second part of Chapter 7 is to examine the extent to which people, particularly leaders, were capable of shaping the process of improvement at Alfred Health. The deeper attitudinal origins of improvement decisions and behaviours are examined, and the way in which reforming the organisation structurally may have indirectly facilitated and supported cultural change, including the broad uptake of hive-like attitudes and practices.

This part of the thesis is also designed to touch upon three interconnected questions about the nature of agency and the extent to which people are capable of controlling or influencing organisational outcomes. The first question asks – to what degree can we separate the causal influence of a person's actions, from the context within which these actions took place? The second question relates to the extent of a person's influence – is it possible for a leader to control, or simply to influence the behaviour of workers? The third question relates to the bias of hindsight – to what degree have outcomes resulted from strategies that were planned, or did particular outcomes emerge from less deliberate origins? These questions have shaped the analysis and play an important role in the identification and interpretation of causal inference.

This section of Chapter 7 is structured in three parts. The first two parts present possible causal mechanisms relating to agency and power, which may help explain the performance outcomes observed at Alfred Health. The final part offers a deeper reflection on questions of context versus strategy, controlled versus influenced change, and planned or emergent change, as raised above.

7.2.1 The attitudinal origins of behaviour: a new worldview

Proposition 3A: The Conceptual Leap Beyond 'Command and Control'

From the mid-1990s, successive leaders of the organisation appear to have shared the view that the power for decision-making and action necessarily and unavoidably exists as a continually shifting dynamic between both leaders and workers. Thus, they transcended the illusion of command and control, and adopted increasingly heterarchical, as opposed to hierarchical, ways of working.

The explanatory proposition introduced above asserts the existence of a single, overarching factor that plausibly accounts for the set of management-led decisions, strategies and actions that were pivotal to Alfred Health's development of performance improvement capabilities. This single factor is best described as a shift in worldview from one in which leaders (consciously or unconsciously) believe they are able to command and therefore control most or all aspects of the organisation, towards one in which (whether they like it or not) power is shared among all group members. As described by one senior executive:

> *…it comes down to everybody having the right attitude. If you have a [*senior manager*] who is sort of a megalomaniac who wants to control everything, then it doesn't work. It won't work. (HA16, Senior Executive)*

This final section of the chapter charts the implications of this worldview on both cultural and structural aspects of the organisation.

7.2.1.1 Heterarchy: a conceptual and cultural leap of faith

'Heterarchy' is a relatively obscure term both in regular parlance and, to a degree, within academia.[30] The word refers to an organisational structure in which the 'power order among various actors may shift depending upon the source of power that is most immediately relevant to the situation' (Aime et al. 2013, p. 328). The notion of heterarchy therefore opposes 'hierarchy', in which persons are 'ranked in grades, orders or classes, one above another' (Oxford English Dictionary 2010) in order to provide a stable power structure to a group, most likely influencing and homogenising the beliefs, decisions and actions of group members. The word heterarchy originates from the Greek *heteros* meaning 'other' or 'different', and *arche* meaning 'sovereignty' or 'rule'. The historical (although now deemed obsolete) definition of heterarchy was 'the rule of an alien' (Oxford English Dictionary 2010), which, as noted in 1634, was considered 'next to anarchy' (Oxford English Dictionary 2010). In contrast, the Greek *hiero* from which the word hierarchy is formed, means 'sacred' or 'holy'. The etiological origins of these words might help to explain why hierarchical structural

[30] Although a smattering of academic articles have been published on the topic since the 1940s (beginning with the field of neurology and brain research), the notion of 'heterarchy' is yet to be used widely. For instance, the term is not included within Oxford dictionaries of sociology or business and management. The term is more common within writing on complexity theory.

organisation has had such a ferociously strong grip on Western (and other) societies throughout recorded human history.

What is apparent from data analysis is that, to a substantial degree, Alfred Health began to transition from a traditional hierarchy to a more heterarchical distribution of power. Heterarchical ways of working are integral to the hive model. For instance, the discussion-consensus cycle provides leaders of Alfred Health with a direct mechanism for redistributing decision-making power. This occurs, first, by seeking the participation of those in the organisation who hold the most relevant knowledge, and those who will be responsible for carrying forward any decisions taken, to take part in discussions. Second, it occurs by allowing the participants to arrive at a consensus decision independent of what the preferences or inclinations of the leader might be. Discussion-consensus, however, does not (and arguably, cannot) operate in isolation from the other hive attributes and cycles. The presence of a strong hive purpose steers the course of discussions and anchors consensus outcomes in ways that resonate with the core mission of the group. Further, without hive energy (and at least some hive consciousness and hive belonging), the capacity for the discussion-consensus cycle to move from consensus to action (or indeed even reach consensus) may be challenged.

Further, the consistency-flexibility cycle is also reliant upon a heterarchical approach. In order for the organisation to allow individuals to act in ways that vary from consistent practice and to accept their proposals for changes in standard practice, there must be permission (explicit or implicit) within the group for individuals to use their power in this way. Again, the presence of hive purpose at the centre of the consistency-flexibility cycle appears to keep the day-to-day functioning of this heterarchical beast on course, thus guarding against anarchy.

The argument presented here is that the shift towards greater heterarchy would not have been possible without senior leaders of the organisation having first made a shift in their worldview - a shift away from hierarchy, from assumptions of 'command and control', and from the notion that an organisation (such as a hospital) behaves and can be managed as if it were a machine. Instead, leaders seemed to have acknowledged and then embraced the boundaries of their own capacity to exert and exercise control over group culture, thus recognising that performance outcomes are a function of the group's dynamic, irrespective of whether that dynamic leads to a positive or negative result.

7.2.1.2 From hierarchy to heterarchy

The early origins of this shift might be attributable to the worldview brought to the organisation by Dr Michael Walsh when he commenced as Chief Executive in 1997. As evident within Dr Michael Walsh's first speech to the organisation (see Appendix K), he explicitly stated that he did not believe in traditional models of hierarchy, in which the Chief Executive is the 'controller' and 'the only leader'. He said:

> *I don't see the Chief Executive as a commander, or ruler or a judge, or a guard. These roles are out of date. And I certainly don't see the Chief Executive as the source of all wisdom or ideas, nor should he be the only leader in an organisation such as this. (Walsh 1997)*

Dr Michael Walsh put forward a clear invitation to 'bright people with good ideas throughout the organisation' to 'come to the fore'. He also added: 'I don't think that senior managers in complex organisations like these can afford to be bad losers or to be frightened of taking risks in order to overcome issues and problems'. It was further stated that 'it is important to foster an environment of trust and mutual respect, and the best way to do this is to encourage open, frank communication and by providing feedback on performance'. Finally:

> *The last and perhaps most important aspect of having an organisational culture which is capable of coping with the stresses and the changes of the late 1990s is to empower staff through a strong commitment to delegation. That means we need to promote decisions close to where the service provision occurs. (Walsh 1997)*

Beyond simply a powerful speech, an interviewee who was present at the organisation during the mid-1990s corroborated this, observing that ideals were translated into everyday action:

> *…Michael Walsh is one of those people who's always agitating to do something different… he was… willing to listen to people from all levels. It wasn't so hierarchical. I think that was the really big difference that had happened. (HA08, Program Director)*

This approach seems to have been extended through to the maturation period, under the leadership of Professor Andrew Way. For example:

> *…key leadership positions… said, okay well, first of all this [*quality and safety*] is everybody's responsibility. (HA05, Senior Executive)*

An executive interviewee spoke about various deliberate tactics that they used to support an expanded awareness of the whole organisation:

> *…[*TQC*] was all about getting the system to think about the system because otherwise people don't. Not because they don't want to, just because they don't… most people… are scientists, so they think about their own domain. They think about it from their*

> *professional lens and it's a very narrow one… But as soon as you invite them in to understand the system, then they can. So that's what TQC was all about, was teaching the clinicians and the leaders across the system to see the system and then to think about how to improve the system. We did it very systematically by every function in the beginning, this is five years ago, talked in this particular meeting that happens every Tuesday. At that point what happened was that cardiology would… present, about what was going on in cardiology. You know what was working, what wasn't working. Radiology would present. Pathology would present. Every function would present. So that gets everybody interested in the system. Because the first thing you've got to do is they've got to see the system and then they start getting interested and then there's permission to actually influence the system… the only way you can move a system is if everybody has permission to talk about the system. Which means people talking about each other's functions. (HA15, Senior Executive)*

Another executive staff member spoke about how important it was that staff working in their corporate services unit understood how their roles were 'connected to so many other things' and were truly 'embedded' in the wider organisation rather than being seen as 'some sort of industrial spy' when they work closely with program or senior clinical staff (HA16, Senior Executive). The interviewee recalled receiving advice from another executive staff member when first joining the organisation: '…unless you have a really good relationship with the medical staff you will fail' (HA16, Senior Executive). To achieve this, the interviewee cited trust as the essential ingredient:

> *…what's really important is that they understand and trust that my job is not to make things harder for them… trust… [*that*] if I had to give them bad news, that I'm telling them the truth. So that takes a long time. (HA16, Senior Executive)*

Another interviewee spoke about the importance of education and professional development opportunities for expanding awareness of the whole system. For instance, the organisation developed a leadership program which was cited as an essential component of the strategy to get people 'working on the system' (HA15, Senior Executive). This appears to have been translated effectively to strategy at the coalface:

> *…how do you then pull it down to the level that you need… at wards?... it then became around communication and developing a communication strategy with all the different tiers in the organisation… So that's sort of how you get from 'we only know what we're doing' to… 'here's the national standards… and what are we going to do about it?'. (HA05, Senior Executive)*

The weekly access meetings were cited as an important mechanism for 'pulling it down to the level that you need' (HA05, Senior Executive). Senior executives would meet every week to discuss the organisation's performance against: patient access targets; pressing issues and challenges to access; and, tangible solutions for immediate implementation. This may not be

so unusual within a hospital environment; however, the great innovation was the invitation to any member of staff to attend the meeting. In the words of a senior clinician:

> *I've been going to that meeting for a couple of years now and it has really made me understand what pressures these people up here have – it's a fantastic thing to be able to go and be invited to see why decisions are being made, and what pressures your work has to somehow fit into… everyone has competing demands, there's one pot of money, there's this many patients… And rather than receiving a phone call from some faceless person saying, 'Can you please… discharge five patients or we're going to get fined by the government.' You go to this meeting and you see… there's been a flu outbreak, this is the pressure that's on… Is there anything we can do?... Is there a hold up on CT scans?... it's our problem. It's not enemies, that's… the difference…' (HA03, Consultant Physician)*

7.2.1.3 From control to influence

Recognising that the leader is not commander or controller begs the question: how then does the leader lead? How might a leader actively *influence* group attitudes and the coordination of group activities towards the achievement of defined outcomes without attempting to control, or at the other extreme, without letting go altogether? What is the difference between hierarchy, heterarchy and anarchy?

One answer to this question might suggest that, in fact, any assumption that command equates with control is fictional, and therefore the basis for hierarchy is fundamentally flawed. For instance, as one senior clinician describes, ultimately the decision to (or not to) cooperate, collaborate and participate in management-led strategies always rests with individuals within the group:

> *…[*senior management*] seemed to spend an enormous amount of time and resources on ensuring that everyone had a chance to air their worries and… [*speak about*] what they thought they would need in order to be able to fulfil the organisation's new requirements handed down from the government. I thought that was really good… [*in contrast*] if these guys [*in senior management*] had sat up here and written up what we had to do and then handed it to us on a bit of paper nobody would have done anything. (HA03, Consultant Physician)*

As such, leaders and managers of Alfred Health appear to be aware that they are not in direct control of staff, their actions (or inactions), the processes they use, or decisions they take. As illustrated above: individual agency reigns. Leaders and managers of Alfred Health learned to influence the functioning of the organisation indirectly rather than directly, through inspiring, cooperating and collaborating with their staff. For example:

> *…it all depends what kind of leader you want to be. If you think of… [*this*] department as a galley… you can either be up there beating the drum faster so they can go faster*

> *by the drum or else you can actually get them to row faster themselves. So there are people [*managers*] who basically sit there and demand that everything gets done but I believe you've actually got to lead from the front yourself… you need to be able to get, if necessary, down on one of the oars and row as hard as anybody else on the boat if that's what you're capable of… In Australia, in particular, people will do almost anything for you if they have respect for you but they won't necessarily do it for you just because you are their boss… You have to be able to make a decision and it has to be a decision that people will respect as a reasonable way to go. So you can't just suddenly say 'everybody's got to… [*do*] more… tomorrow because we've got a backlog' and then sit in your office and expect them to do it. If you get out and go and sit next to the registrars and [*help them over*] a couple of hours… then that's quite different. They think, 'well gee if the boss has got to do that…' and that does sort of lift them... (HA02, Program Director)*

It would appear as though the first step towards nurturing a more heterarchical way of working at Alfred Health (beyond the initial shift in worldview) was to personally display and demonstrate the cultural qualities that were desired for the group. Thus, the degree to which senior leaders genuinely believed in (and embodied through their decisions and actions) the principles and values that were consistent with the hive attributes was of vital importance to the organisation-wide operation and spread of these qualities.

With regards to hive purpose, interviewees described the 'strong personal interest and focus on quality of clinical service…' apparent within a long line of Alfred Health Chief Executives (HA01, Senior Executive). Similarly, one Program Director stated that, among senior leaders: 'there is a desire…. to make quality part of the ethos and the day-to-day way in which we deliver care' (HA10, Program Director). In the case of hive consciousness, several interviewees reflected on their efforts to expand the organisation's awareness of itself:

> *…one of my first jobs was to actually demonstrate that you know there's no 'them', there's just 'us'. (HA07, Program Director)*

> *[*our CEO's*] perspective is obviously different… he's trying to get people to look more globally, [*rather*] than just across the river [*to the 'competition'*]... (HA08, Program Director)*

Front-line staff members spoke of a high level of cohesion, collegiality and trust (hive belonging) between various levels of the organisation, largely brought about by the accessibility of leaders for consultation and communication. For example, a senior clinician spoke about how regularly clinicians and managers 'seem to sit in rooms together' in order to 'work really closely with managers' to resolve problems that arise (HA03, Consultant Physician). Another clinician spoke about the 'genuine interest' of leaders in gaining a better understanding of what it is like to work in various parts of the organisation (HA12, Nurse Unit

Manager). Other interviewees attributed this collegiality to deliberate strategies employed in later decades, for instance 'exec walk-arounds', and ensuring that senior and executive managers were 'more visible' to frontline staff (HA04, Program Director). And others spoke about how leaders actively fostered attitudes of shared accountability in order to prevent blame (thus nurturing hive belonging):

> *The real answer around a lot of performance is not to take the view of this is an emergency problem, this is a general medicine problem, we're all collectively responsible so having to acquit performance across the whole continuum of care (HA07, Program Director)*

> *…we were having a conversation that was about: can we own our own performance as opposed to fight the imposed performance requirements of others. So let us own our 60% access, or whatever it might have been, and say that's not good enough as opposed to blaming the government for the target. So changing the dialogue from one of blame, one of victim, to being one of ownership, one about success. (HA01, Senior Executive)*

Data analysis also suggests that a heightened sense of belonging and mutual trust at Alfred Health was kindled by gestures of personal vulnerability offered by leaders. For instance, this might include an instance in which a leader hands over control to the broader group, thus demonstrating respect and trust in the group's capacity to act with integrity and efficacy towards the group's common purpose. A little like the offering of an olive branch, these gestures appear to transverse otherwise 'tribal' boundaries between administrator and clinician, doctor and nurse or allied health practitioner, or between wards or different organisational divisions. In doing so, this seemed to create a broader sense of belonging and an identification with the organisation as a whole, rather than individuals reverting to a more limited sphere of trust and loyalty. For example, recollections from the early phase of the TQC program indicate times in which leaders of the organisation resisted the impulse to control the change process, despite feelings of anxiety as to the direction that the process may have been going:

> *…remember[*ing*] the… launch time: 'do we do this?', 'don't we do that?', 'what's our get out of gaol if this doesn't work'… [*one of our senior executive staff members*] does say this from time to time: 'sometimes you just can't let this conversation and discussion shut down. Sometimes you've got to let it run its course'. People have to sort of think through their anxieties and say 'no' initially and then think 'oh' and then say 'maybe' and then say 'oh well, you know, possibly' and then 'well actually let's give this a go' to, 'okay this is a fantastic idea, let's do it'. So [*the senior executive staff member had*] been fairly clever around that. (HA07, Program Director)*

Allowing conversations to 'run their course' requires that leaders let go of a sense of control to the broader group. Looking through the eyes of government, however, the ultimate responsibility for hospital performance sits with the senior leaders. As such, these gestures in which senior leaders placed respect and trust in the group put them in positions of personal risk and vulnerability. However, having taken this risk, the group was allowed to pass through the necessary process of change – from anxieties about the change, to acceptance, and later to enthusiasm.

Another example from around the same time, relates to the introduction of the National Elective Surgery Target (NEST) in the early 2010s, in which hospitals were scrutinised for their capacity to perform surgical procedures within certain timeframes. The timeframes were dependent upon the category of urgency that corresponded with that individual's clinical diagnosis (for example, the clinically recommended timeframe for the surgical treatment of a patient with cataracts might be, for instance: less than 365 days). In Australia, the category of urgency for a particular patient (usually Category 1 <30 days; Category 2 <90 days; Category 3 <365 days), is decided by the referring surgeon, with historically, few agreed-upon criteria with which to form this decision. Senior leaders at Alfred Health discovered that, due to the number of patients who were not treated within the clinically recommended timeframes, referring surgeons had begun 'gaming' the system by exaggerating the category of urgency for some patients, so that it would be more likely that those patients would be treated within the clinically recommended timeframe. At an individual level, this sort of escalation demonstrates a high level of care for the patient; however, at an organisation and system-level this tendency, *en masse*, had the capacity to create bottlenecks of demand within the system, to lead to poor clinical outcomes for patients whose procedures were indeed more urgent, and to distort organisational reporting against government performing targets. In response to this 'gaming' senior leaders:

> *…[*had*] a conversation with clinicians…about… '[*us*] managers and administrators are there to provide you with the facilities and infrastructure to do your job well, we can only do that if you do your job well, so please don't game with us to get… a better slice of the pie.'*
>
> *…one of the big transformations… [*was*] guaranteeing access within target times for elective surgery, suddenly all the gaming that used to go on about 'this is a priority 2.5 as opposed to a...' all that stopped and people now prioritise properly.*
>
> *…you can only have those sorts of conversations when you build up trust and… you can deal with problems that you create together.' (HA01, Senior Executive)*

Offering to guarantee that a patient would be seen within the clinically recommended timeframe for their condition in exchange for ceasing all gaming behaviour was potentially risky for leaders. The degree to which the guarantee could be met, both successfully and consistently, was as dependent upon the actions of the surgeons as it was upon executive decisions around resourcing and infrastructure. Further, merely broaching the subject of gaming practices with surgeons invited a level of confrontation – it accused the surgeons of doing something that may have been viewed as dishonest. Thus, rather than attempting to exercise arbitrary authority and control over the clinicians (by simply launching a new decree, top-down procedure, or financial penalty), the gesture involved carefully challenging the surgeons alongside an offering of respect and trust.[31]

Whereas in the early 2000s: 'people were too scared to talk. People were too scared to question' (HA11, Nurse Unit Manager), more recently there is evidence of relatively high levels of trust throughout the organisation, including between different professional groups and staff working in different wards or divisions (HA03, Consultant Physician; HA11, Nurse Unit Manager). The capacity for staff members to openly and comfortably challenge each other's decisions and behaviour (without the confrontation leading to an escalation of conflict, to fragmentation of cohesion, or a diminishment of the overall rapport between staff members), is an indicator of strong trust and belonging. For example:

> *…they started calling out each other's behaviour. That's the first sign of a change in behaviour, when peers start holding each other to account and saying, actually you know I don't speak to her like that or him like that… it's not acceptable to me and et cetera. So that started to change. A couple of people left, they didn't like it… So over 12 months [*later*]… that's the team people want to work in now, it's a really happy team. (HA15, Senior Executive)*

Interestingly, each of these sorts of 'coalface' excerpts refer to more contemporary than historical instances. This would support the argument that gestures of vulnerability and trust may have initially been offered by leaders, before being woven into the fabric of micro-interactions throughout the organisation, perhaps indicating the influence of learned behaviour modelling.

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[31] Interestingly, as pointed out within the excerpt above, the success of this gesture was also reliant upon an existing level of trust between clinicians and administrators. Hypothetically, in a culture in which there was less pre-existing trust and respect, the gesture may have incited defensiveness, cynicism, or it may have been ignored altogether.

The longevity of leaders and the open display of these shared values over a long period of time also appears to facilitate the consistent spread of these attitudes throughout the organisation. As described by one senior executive:

> *… [*the*] Chief Operating Officer has been here nine years, Chief Medical Officer has been here eight years, [*our CEO*] has been here 6 years… in public health they're long term appointments… there is something about longevity of teams that makes a difference. (HA01, Senior Executive)*

Another senior executive staff member suggested that senior leadership longevity ultimately created the right conditions for the executive to function with 'one mind', thus embodying the essence of the hospital hive mind metaphor:

> *…because there's a lot of stability at the senior level… we have one mind about… a single approach to quality improvement. (HA15, Senior Executive)*

This also underlines the vital role of the hospital board and the influence of their senior leadership recruitment and appointment decisions upon organisational performance. Boards single-handedly determine the calibre and longevity of these senior appointments, which have repercussions (positive or negative) for the organisation over a long period of time. It is interesting to note the relative absence of commentary relating to the Alfred Health board within interview data, however the presence and influence of the board is far more apparent from documentary data, particularly regarding their advocacy role within the mid-1990s.

Alongside the modelling of hive-like values, leaders consistently enacted the heterarchical worldview, translating these values from ideal to real. For instance, as described in Chapter 6, after the threat of closure hospital executives embarked on a deliberate 'Kotter 101' strategy (HA13, Senior Executive) harnessing group energy, and rapidly growing and protecting the organisation from further threat. Furthermore, as cited above, leaders encouraged more dialogue between each of the traditional hierarchical levels of the organisation (thus introducing the discussion-consensus cycle), creating an increased sense of hive consciousness and belonging across traditional tribal (professional or ward/division) boundaries. And, as will be examined in more detail below, several structural reorganisations supported, first, the devolution of authority, and second, the integration of organisational parts to form a whole.

7.2.2 Homeostasis: striking a structural balance for the distribution of power

Proposition 3B: The Dance Between Knowledge and Nous, Planning and Intuition
Underlying important structural and cultural changes observed at Alfred Health, were a series of judgements made by successive leaders of the organisation. These judgements demonstrate a capacity to relatively quickly gauge the contextual climate of the organisation (environment), form a diagnosis of any prominent organisational imbalances (structural attributes), discern the readiness of staff to correct these imbalances (cultural attributes), and use a synthesis of this information to establish how 'ripe' conditions may be combined with specific strategies or interventions (strategy) to move towards a homeostatic ideal. Therefore, the decisions of successive leaders at Alfred Health suggest that what is important is a leader's capacity to read context, discern need, and employ nous.

Whereas in the case of organisational culture, the extent of a leader's power may be restricted to *influence* rather than *control*, arguably organisational structure largely remains in the domain of direct control. But to what end? Although there may be important technical efficiencies that planned structural changes may bring about, it is also important to recognise that structure affects culture. Further, it is important to consider that the cultural effects of structural change may or may not be intended, and may or may not represent wholly positive developments.

In the case of Alfred Health, however, evidence would suggest that the resulting cultural effects of structural change may have been somewhat more deliberate. As will be argued, the swing of the pendulum between centralised and devolved structures appear to have corrected potential imbalances within the organisation, including imbalances on cultural as well as structural levels. Whereas leaders might typically use organisational structure as an 'easy' lever to exert (potentially arbitrary) control over an organisation, successive leaders of Alfred Health appear to have made very sophisticated decisions about structural change. These decisions demonstrate the capacity of leaders to have diagnosed the macro-state of the organisation with particular attention to potential imbalances, and to have discerned what contextually 'ripe' conditions may have looked like for correcting these imbalances. The

idea that there might be one 'perfect' organisational structure to be used *ad infinitum* is false, rather the decisions of successive Alfred Health leaders to shape organisational structure suggest that what is important is a leader's capacity to 'read' context, discern need, and employ nous.[32]

7.2.2.1 Finding a homeostatic balance: from centralisation to devolution to structural integration

Perhaps in rebellion against the sorts of government-imposed health network mergers and centralisation reforms of the mid-1990s (as examined in detail within Chapter 6 and Appendix K), within two months of Dr Michael Walsh's appointment as Chief Executive in 1997, he had begun the process of organisational structural decentralisation. Interestingly, this was two years prior to a change in State Government which ultimately led to the unravelling of the centralised hospital network mergers.

'Evolving Through Devolving: The Alfred's Organisation Structure and Inner Workings' was the title of the Special Edition staff news bulletin distributed in July 1997, within which Dr Michael Walsh's previously-cited opening speech to the organisation was published alongside diagrams detailing a new organisational structure. An intact copy of the bulletin can be found in Appendix K. Within the speech, Dr Michael Walsh spoke about his role as:

> *…change agent and a catalyst, to push hard to delegate authority and decision-making responsibility down as close to the levels where people are actually doing the work as possible. It is important to be a good communicator, and particularly a good listener and to seek out good ideas across the organisation, from all levels of the organisation and not to be overly dependent upon the formal structure. (Walsh 1997)*

The structural changes that Dr Michael Walsh proposed (and subsequently enacted) involved a phased approach in which the organisation moved from an executive structure[33] to a

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[32] The concept, 'nous', originates in classical Greek philosophy. The term is often mis-translated in overly simplistic terms to represent 'intellect' or 'reason'. In Aristotelian terms, nous refers to 'the part of the soul by which it knows and understands' (Hicks 1907) and describes the human capability to form judgements in ways that are somewhat akin to intuition. That is, the process does not involve reasoning, as such, but rather, is a product of a faster mechanism of discernment and judgement that may combine sensory observations with imagined projections.

[33] For instance, the 1994/1995 annual report (prior to the centralised hospital mergers) provided a diagram of the organisational structure in which the Chief Executive managed three General Managers (acute, non-acute and commercial services), five Executive Directors (medical services, nursing, finance and business, human resources, and planning and projects), and one Chief of Investigative Services. Also reporting directly to the Chief Executive were several management executive committees (e.g. divisional management committees for

structure in which clinical directorates reported directly to the Chief Executive. Each clinical directorate was led by an appointed senior clinician (rather than a manager/administrator as preferred by the NPM-style trends at the time) and supported by a business manager and senior nursing partners. Alongside this, the Chief Operating Officer, Director of Medical Services, Director of Nursing and Director for Support Services roles continued to function, however in horizontally aligned advisory roles (across each of the clinical directorates) rather than having line-reporting responsibilities (see organisational charts included within Appendix K). This structure created a highly devolved organisation of power, in which clinical directorates operated as semi-autonomous divisions, allowing them to manage their own resource profile and make decisions that made sense locally. Further, key to this were 'the information systems… [*that*] give the people who run those business units the necessary information to make decisions about where the resources are going' including involvement from 'the medical division, to the nursing division and to allied health' (Walsh 1997, pp. 4-5) (as per the information-action cycle).

However, this structure was not an invitation to establish a traditional (medical) fiefdom. The speech emphasised the need for 'teamwork' and the use of 'multi-disciplinary teams' (Walsh 1997, p. 2), stating 'I see each directorate having a joint leadership – a medical and nursing partnership – with support from a senior business manager' (Walsh 1997, p. 4). This placed senior nursing and medical staff in shared positions of authority over all professions within clinical directorates. One interviewee who had been a Nursing Partner for one of these clinical directorates, described the change as somewhat radical for more hierarchical-minded colleagues:

> *He decided to do an experiment of having a doctor and nurse partner to manage a chunk of the hospital… I didn't have a problem with that… I think that put me in a different place to a lot of my contemporaries who were very much still under that hierarchical thing… People are people and they're there to manage and if you're very clear about your expectations, it doesn't matter if they're a doctor, a nurse, a cleaner, whatever. It's actually easy to manage if you are clear, right up front. It's when you're not clear that it becomes difficult… (HA08, Program Manager).*

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medicine, surgery or rehabilitation etc. and finance and audit or medical staff appointment committees) and several corporate executive bodies (e.g. The Alfred Foundation board, or research board).

Structural devolution, as implemented by Dr Michael Walsh in the late 1990s, played an important role in supporting the sorts of cultural developments that were also envisaged. As touched on above, devolution required that high-quality data be directed to local levels of authority for locally relevant decision making, a vital component of the information-action cycle and the management cycles described in Chapter 5. Devolution asked that medical, nursing, allied health and management professionals work together to serve the community, marking the beginnings of hive belonging and the hive purpose. In an external political environment of centralisation and control, this invited a greater sense of collective power and agency, allowing clinicians, via the clinical directorates, to act with higher degrees of autonomy (hive flexibility), and to innovate (hive energy) towards the greater goals of the organisation (the hive purpose).

However, importantly, even from the outset it was intended that the organisational structure be responsive and continue to evolve. For instance, Dr Michael Walsh spoke about the need to identify priority tasks and projects, and then, following their achievement, move on to new tasks and projects, without a dependency on standing committees which 'seem to go on forever' (Walsh 1997, p. 2) or 'hit a brick wall' (Walsh 1997, p. 6). Further, at a broader level, Dr Michael Walsh stated:

> *…because of the complexity of the environment in which we work in, it is more likely that we will face ongoing restructuring and resizing, rather than a period of long stability… I believe we need to evolve at The Alfred. I don't believe that in any sense an organisational structure is a permanent thing. We need to be flexible in adopting the organisational structure which bests suits the needs of The Alfred and in the end that will depend a lot on who the people are in the organisation and what it is we are trying to achieve. (Walsh 1997, p. 2)*

Consistent with this sentiment, by the time Professor Andrew Way entered as Chief Executive of the organisation in the late 2000s,[34] there was both a need and a willingness for further

[34] Professor Andrew Way's appointment followed a four to five-year period in which Jennifer Williams was Chief Executive (2004-2008). According to documentary analysis, the period of Jennifer Williams' leadership was relatively stable regarding environmental shifts, the organisational context and performance outcomes, with the exception of the highly-publicised 'Kossmann scandal' of 2007 (refer to section 6.2.1). Compared with Dr Michael Walsh and Professor Andrew Way, there is very little interview data relating specifically to Jennifer Williams' leadership at Alfred Health. A rare reference to Jennifer Williams during interviews stated: '[she was] a terrific CEO and I actually came to The Alfred because I actually wanted to work with her' (HA07, Program Director). The relative lack of data makes it difficult to examine the influence of her leadership during this period.

structural change. As one Senior Executive commented 'Michael created the culture of "1000 flowers bloom"' which, it was added:

> *[*we've*]… been pulling back… because what we had was literally parts of the organisation that couldn't connect to each other because they'd gone off in such different ways… in which they'd use technology, equipment, develop clinical processes and… so we've had to bring some of that back under the consistency banner. (HA01, Senior Executive)*

This is not to suggest that the structural changes implemented by Dr Michael Walsh were wrong – indeed they did appear to support and influence the culture of the organisation in the ways in which they were intended. That is, Dr Michael Walsh responded to the contemporary structural and cultural conditions that were presented to him. However, having achieved these initial cultural changes, the organisation required further adjustments to its structure, in order to progress towards the next set of envisaged cultural changes. For instance:

> *…when Andrew came out as CEO… he put a stamp on what he wanted the organisation to look like. He went through a process and engagement… there was a period where there was feedback in terms of what was working… a pretty smooth transition. I think, all the right program directors were appointed… And to be honest even before Andrew Way started we were increasingly thinking about how do we think of ourselves as a whole organisation rather than campuses that are just bundled together. (HA07, Program Director)*

Professor Andrew Way's structural changes did not seek to undo the structure that was there and replace anew. He sought 'feedback in terms of what was working' and then seems to have harnessed pre-existing sentiments within the organisation for the need to 'think of ourselves as a whole rather than campuses… bundled together' in order to develop a structure that supported organisational integration (HA07, Program Director). In doing so, he supported the strengthening of hive consciousness, and paved the way for a greater sense of the whole-of-organisation purpose (hive purpose). Importantly, structural integration helped to rebalance consistency and standardisation, with flexibility and individual agency.

Indeed, organisational structure appears to have a very close relationship with levels of consistency and flexibility. A highly devolved structure might do well to support individual agency and flexibility, but risks disconnection between parts of the whole. In contrast, a more rigidly centralised structure provides avenues for consistency through layers of authority and standard procedure but risks inadvertently discouraging staff from playing an active role in bringing about the collective purpose of the organisation. What seems to have resulted from

the structural reorganisation initiated by Professor Andrew Way in the late 2000s, is a structure that was sufficiently centralised and standardised to facilitate union and smooth functioning between the parts, but also allowing for individuals to feel and act with a level of autonomy. Thus, it was only in the 2010s that a mature balance between consistency and flexibility is evident within the organisation's culture, despite these qualities being present earlier. Importantly, the structural integration introduced by Professor Andrew Way did not harm the cultural achievements that had resulted from the re-structure that had come before. This particular structural balance was, arguably, conducive to the ever-more heterarchical ways of working that emerged in the 2010s.

One might ask: would it have been possible to have adopted a structure resembling the one introduced by Professor Andrew Way decades earlier, thus 'cutting to the chase', saving time, resources and avoiding missed opportunities? The argument proposed here would suggest not. As outlined within the first section of this chapter, the evolutionary steps were iterative, relying upon greater and greater levels of trust in the organisation in order for staff to be sufficiently ready to progress to the next step. The art of leadership demonstrated by Chief Executives at Alfred Health is best described as their capacity to discern the level of group readiness – to know which strategies or interventions would sufficiently challenge staff to think, feel and act differently, without undermining trust in a way that would produce resistance, conflict or apathy. And, importantly, it is likely that these powers of discernment were not wholly conscious or cognitively administered, rather they may represent a dance between knowledge and nous, planning and intuition.

7.2.3 Change: strategy or context? Control or influence? Planned or emergent?

This section reflects upon three interconnected questions relating to the nature of agency and the extent to which leaders (or potentially non-leaders) were capable of controlling or influencing organisational outcomes at Alfred Health.

Strategy or context?

The hive attributes and cycles seem to have emerged from a complex set of multifactor contextual conditions (environmental, structural, cultural) as well as the decisions, actions and strategies taken by leaders, managers and others within the organisation. However, the question remains, to what *extent* were factors of context versus action responsible for the

outcome? For instance, without the context of rationalisation and reform during the 1980s and 1990s Alfred Health may not have developed a heightened hive energy nor commenced routine use of the information-action cycle. Other peer hospitals may have been subject to a similar set of external conditions (acknowledging peculiarities regarding patient demographic characteristics, demand for services, clinical service profile etc.) but did not necessarily develop the same capacities. How might this be explained?

In addressing this question by drawing on the proposition presented in Section 7.2.2, those strategies that were influential to the development of hive attributes appear to have been formed in response to, or in interaction with, broader contextual conditions. For instance, the use of a 'Kotter 101' strategy helped to develop and harness hive energy, but in turn, the success of the strategy itself was made possible by the threat of closure, which had provided a sense of urgency or 'a useful bullet', for change (HA13, Senior Executive). Similar patterns of strategy-context 'fit' can be observed with the implementation of the TQC program, or leaders' use of vulnerability gestures to create belonging and trust and reduce waiting list gaming behaviours.[35] As argued here, there is perhaps no functional separation between a successful strategy and its context – the more responsive to contextual conditions (both external and internal), the better the strategy.

Control or influence?

Whereas organisational structure is arguably under the more direct control of leaders, to what extent is it possible for leaders to control culture? The actors and actions that contributed to the development of the cultural hive attributes are of particular interest to this study. This is because, as the hive attributes are conceptualised as attitudinal before reaching the level of behaviour, managers and administrators have only marginal control over their development. For instance, although leaders might direct staff to behave in accordance with, for instance, the principles of person-centred care, the degree to which staff members genuinely share beliefs, values and attitudes that are in harmony with this cannot be regulated from above. If a staff member does not understand, agree with or prioritise the

[35] For example, both the TQC strategy and the anti-gaming strategy broadly responded to the introduction of NEAT and NEST targets, however internally, were able to draw on existing routines for improvement (information-action cycle) and existing values around the importance of safety and quality excellence.

principles of person-centred care above all else, their behaviour may or may not reflect those values when no longer under managerial scrutiny. [36]

Further, there is a practical limit to the degree to which attitudes, values and beliefs are capable of being codified by managers (e.g. within policy documents, guidelines, checklists) in order to control behaviour. Therefore, leaders and managers may be capable of *influencing* the development of hive-like qualities but these cultural attributes cannot be concocted at will. Hive cycles, on the other hand, straddle both attitudinal and behavioural aspects in a more balanced way, and therefore, managerial influence over the cycles is (theoretically) greater. Although the boundaries between the hive attributes and cycles are somewhat blurry (for very good reason!), a particular interest here is to understand the degree to which leaders at Alfred Health were capable of influencing the development of these intangible, yet fundamentally important, hive attributes. This spans both subtle levels of influence (e.g. leaders modelling hive-like values) as well as gross levels of influence (e.g. leaders making organisational structural changes which indirectly influence culture).

Based upon the findings presented in Section 7.2.1, the extent to which a leader may exercise power over organisational culture appears to be limited to *influence* rather than direct *control*. By implication, this indicates that power is shared among group members. Leaders, however, do have a privileged position in the sense that, their capacity for influence (via mass communications or the implementation of structural or procedural changes) is perhaps greater than those who work in localised areas. Successive leaders of Alfred Health were able to influence culture in a multitude of ways, for instance by: personally modelling the values that they wished to promote; embarking on projects that put their values into action (e.g. TQC); carefully recruiting and deliberately acclimatising new group members to the desired culture; and making structural changes to the organisation, such that the

[36] This is consistent with critical realist ontology. According to Bhaskar (1979), an individual's thoughts and beliefs about how actions are linked to consequences motivate their behaviour, and in turn, correspond to their tendency to act in certain ways. These underlying beliefs, reasons and motivations therefore constitute the generative mechanisms (causal powers) that belong to that agent, and that lead them to perform certain actions. The ultimate consequence (for example, hospital performance), arising from a series of actions, stemming from a larger group of agents, involves a complex interaction between the cumulative actions of individual agents, social entities and other physical or social structures. Although these factors may combine to create a certain outcome, it is important not to confuse or oversimplify the 'ownership' of the casual powers that cumulate, activate, or inhibit activation, in various combinations, and at various times.

organisation was more conducive to the development of particular cultural attributes (e.g. increases in hive consciousness following structural integration in the early 2010s).

Planned or emergent?

It is worthwhile noting that the hindsight offered by historically oriented interview research may inadvertently infer the existence of overt, explicit and intentional strategies or actions where this may not have been the case. Although an interviewee or researcher may make sense of past events and current outcomes using language that implies that the outcome resulted from an action that was planned and deliberate, this may not be the case. For example, after describing how a particular strategic decision was made during the time just following threat of closure, one interviewee reflected:

> *I don't know that it [*the decision*] was actually made in the manner that I just described. It's more like a series of subsidiary decisions that add up to that really… (HA13, Senior Executive).*

Evidence might suggest that many of the decisions, strategies or actions taken by leaders and managers had an indirect and perhaps unintended (yet frequently positive) effect upon the hive attributes. It is unlikely that leaders and managers overtly or consciously planned the development of a hive-like culture as described in Chapter 5. However, on the other hand, a number of key strategies or actions taken by leaders do seem to have had an important influence on hive attribute evolution. As such, it is important to identify whether the effects that may have been brought about by certain decisions and actions were indeed planned or unplanned. This is because the difference in approach between planned versus unplanned change may itself be an important and influential factor in the outcome. From a research perspective, a distinction between the two is useful in order to understand the potential applicability and generalisability of findings to other contexts.

Based upon the findings presented in Chapter 6 and earlier within this chapter, those strategies that were most influential to the development of various cultural attributes tended to be fairly deliberate, and there is evidence to suggest that cultural change was, at the very least, hoped for at the outset of these strategies (e.g. Kotter's 8 Steps; structural devolution and structural integration; the anti-gaming strategy; TQC). However, the knock-on effects of these strategies upon the organisation's culture may have been somewhat more freewheeling and emergent. There is evidence of various strategies beginning to 'snowball'

(e.g. TQC), whereby staff members of the organisation had begun to internalise the cultural changes and then spread them throughout the organisation in less anticipated ways. For example, as described within the following interview excerpt, there were instances in which momentum for change and improvement intensified in more emergent ways:

> *…[*the change process*] was pretty small and tight to start with, [*involving*] more senior people, but I think as things have evolved it has involved more and more people and there's sort of groups that have sort of hung off that. So it's involved the nurse manager group and the junior medical group and we have little side groups that relate to the broader TQC at The Alfred for example. The ward leadership teams really fell out of TQC as… it's gotten bigger and more momentum as time's progressed. Involving more people… (HA07, Program Director)*

This example of 'snowballing' momentum underlines the ways in which the hive attributes may have developed in unplanned and spontaneous ways, rather than following a completely planned linear progression. Similarly, it is interesting to reflect on how unlikely it is that various governance and committee structures, or clinical research programmes, or benchmarking and audit activities etc., were initiated with the explicit motivation to shape the cultural attributes of the organisation. Rather, it is likely that the culmination of both more and less deliberate strategies came together to harness and advance the hive attributes.

Additionally, as touched on in Chapter 5, there are a small number of examples of organisational changes arising from the 'bottom up', including the development of an organisation-wide LGBTIQ diversity policy, and the initiation of an Alfred Health TedX Talk series (HA15_B, Senior Executive). In other words, strategies sometimes appeared to have an emergent life of their own. Importantly, this seems to be linked to the degree to which the internal context of the organisation was 'ripe' for the particular planned changes that were introduced, and the extent to which the organisation was encouraging of individual agency. In conclusion, the findings of this study seem to suggest that some strategies that were identified as having the most positive influence upon the development of hive attributes appear to have been implemented with a deliberate intent to influence organisational culture, however, the mechanism of cultural adoption and normalisation may have unfolded in more collectively emergent ways.

7.3 CONCLUSION

The second research question sought to explore how and why contextual conditions interacted with organisational attributes and how this may have influenced the organisation's capacity for performance improvement. Thus, this second research question prompted a far deeper exploration of the findings in order to develop reasonable inferences as to the causal mechanisms underpinning observable changes. In particular, the first part of this chapter approached this question from the perspective of time and timing: why some hive attributes and cycles may have emerged earlier than others? Was there a set of necessary and sufficient conditions for certain attributes to arise? What may have been the rate-limiting or rate-facilitating factors or conditions that influenced the organisation's development?

The first section of this chapter presented three explanatory propositions relating to the sorts of temporal mechanisms that may have been responsible for Alfred Health's increase in performance improvement capacity, and by implication, improved performance. The first proposition suggested that the sequence with which the hive attributes and cyclic routines unfolded was causally significant, representing key evolutionary steps. The second proposition describes the steps as sequential; however ultimately, non-linear in nature. The third proposition suggests that the progression from one evolutionary step to another was strongly influenced by the level of intra-organisational trust within the organisation (in conjunction with the various contextual conditions at play). However, what a temporal analysis is unable to answer is the degree to which people influenced this progression – whether actively or passively, intentionally or unintentionally. This is was the focus for the second part of this chapter.

To examine the question of agency and power, an explanatory synthesis of evidence was required, drawing on an understanding of the dynamic flow between environmental contextual conditions and events, key organisational attributes (including structure, culture and leadership), and the sorts of strategies and actions that unfolded at Alfred Health over the near 30-year period of study. Two explanatory propositions were presented in the second part of this chapter, relating to the underlying mechanisms of agency and power that may have been responsible for Alfred Health's performance improvement capacity, and by implication, improved performance. The first proposition suggested that several long-standing leaders of Alfred Health moved beyond a more traditional, hierarchical 'command

and control' understanding of power and leadership, to adopt a more heterarchical view in which decisions were made and actions taken within a continually shifting exchange of power between both leaders and staff. This allowed for more collaborative, democratic, consensus-based ways of working, providing the fertile ground within which the hive attributes and hive cycles (the performance improvement capabilities) could be established.

The second proposition suggested that, underlying the structural and cultural changes that appear to have led to performance improvement, are a series of judgements made by leaders that demonstrate their capacity for rapid discernment and nous. These sorts of decisions appear to share various features or patterns: first, they demonstrate a leader's capacity to quite quickly gauge the context of the organisation, both external (shifts in regulations and reforms etc.) and internal (organisational structure and culture imbalances); second they seemed to tap into an understanding of staff perceptions (or blind spots) and their willingness for change; and lastly, leaders seemed to be capable of forming strategies that take advantage of these 'ripe' conditions for change. Part C of this thesis (Chapters 8 and 9) considers value of these findings, in light of existing research findings and in relation to their capacity for theoretical generalisation to other practice settings and contexts.

PART C. DISCUSSION AND CONCLUSION

By setting aside the metaphorical magnifying glass from the scope of a single case study, an opportunity arises to prompt deeper and broader reflection as to the meaning and implications of these more granular findings. The overarching purpose of Chapters 8 and 9 is to reframe the case study findings within their broader academic, policy and practice contexts. This involves considering the research findings from fresh vantage points and helping to appraise the research for trustworthiness, relevance, and the degree to which findings may offer value to practitioners and other researchers.

A description of Part C chapters and their interconnections

The purpose of Chapter 8 is to examine and discuss the findings of this study in relation to their position within the broader academic corpus. The chapter is structured in two parts: first, an overarching summary of the case study research findings and how they compare with the original aims of research; and second, a comparison of the findings with existing theory and knowledge. Following this, Chapter 9 reflects on the strengths, limitations and delimitations of the study and presents a series of considerations and recommendations for future research and for policy and practice. Table 13 describes how the content of each chapter aligns with key critical realist concepts, and these concepts are touched on below.

Table 13 The correspondence between chapter content and key critical realist research concepts

	Summary of chapter content	**Corresponding critical realist concept**
Chapter 8. Discussion: The Alfred Hive – A Living Macro-Organism	Chapter 8 offers: • An examination of the degree to which research findings address the research questions adopted to guide the study; • A comparison of the findings with existing academic knowledge.	• Stratified ontology • Abduction • Retroduction
Chapter 9. Conclusion	Chapter 9 offers: • A discussion of the strengths, limitations and delimitations of the study; • Implications and recommendations for future research;	• Transitive and intransitive reality • Theoretical generalisability

	• A discussion of implications for policy and practice, including the use of a critical realist theory-borrowing framework and decision support tool (as developed and presented in Appendix L); • A reflective statement of overarching conclusions from the study.	

Critical realism in practice: stratified ontology

Regarding the notion of stratified ontology (see also Section 4.3.2.1 of this thesis), critical realism asserts that reality (independent from our social construction of it) does indeed exist 'out there' as an ontologically distinct truth. However, this is brought into balance by a counter-assertion that any attempt to measure or to know this truth (via research, for instance) is fundamentally flawed.[37] In other words, the very act of attempting to measure or describe the truth is itself an abstraction and an approximation, requiring a level of reduction and disconnection from the complex web of interconnections at the level of the whole.

Further, given that the core purpose of critical realist research is to identify the *hidden* causal mechanisms that underlie empirically observable events (Fleetwood 2014; Wynn & Williams 2012), the outcome of a critical realist study is, quite unavoidably, no more than a plausible (well-evidenced) set of theoretical propositions. This is akin to the task of an ecologist trying to understand the forces at play in a particular habitat or ecosystem, or the role of an archaeologist making sense of the past from the dynamic puzzle of artefacts that they have available to them. For this reason, the role of the critical realist researcher is to continually select, modify or construct the closest theoretical approximation of the truth, irrespective of the inevitably problematic nature of this activity.

It is therefore necessary to approach the discussion of research findings with a comparative curiosity – to examine each of the competing theoretical approximations of the truth and to conclude as to which is the most plausible, and which best represents the

[37] This is a somewhat indirect explanation of the critical realist notion of stratified ontology. The purpose here is not to introduce or describe the notion, but to explain how an understanding of stratified ontology has been used to shape the research described herein. For a more comprehensive description of stratified ontology, return to Chapter 4, section 4.3.2.1.

evidence available at the moment in which this conclusion is carried out. Therefore, in order to fulfil the critical realist principle of stratified ontology, a primary purpose for Chapter 8 is to present an assessment of the relative explanatory value (as related to the case and phenomenon under study) of the various different explanations for hospital performance and performance improvement that are available. This includes those explanations introduced in the literature review (Chapters 2 and 3) as well as theory developed from the empirical findings of this study (Chapters 5, 6 and 7). This is an example of abduction, requiring a movement between both deductive and inductive logics, as existing explanations are conceptually redescribed and recontextualised for comparison with new evidence (Bhaskar 2016, p. 79). Further, the process also involves retroduction: having put the spectrum of existing theories through a process of conceptual recontextualisation (abduction), existing and new theory is then synthetically compared and potentially combined in order to draw a conclusion, given the evidence available to date. This signals that the process of critical realist research analysis does not end at the close of the last findings chapter.

Ultimately, the hope of a critical realist researcher is that future research will continue to bring these theoretical approximations closer to the level of reality, irrespective of the understanding that reality itself will remain unattainable.[38] Put simply: according to critical realists, the potency of research is in the perpetual continuation of the research process over many years and generations, rather than the particular findings and interpretations of any one study (Kuhn & Hacking 2012). This helps to situate a single research project within a far broader context, both temporally and relationally, and removes any real or perceived pressure to arrive at or defend a fixed or rigid conclusion. Rather, it places emphasis on posing increasingly sophisticated questions, which arguably provide a better measure of a society's capacity to expand viewpoints and worldviews, than the act of answering these questions in a finite or final way.

Critical realism in practice: theoretical generalisability

Whereas positivist researchers seek to generalise from research findings in order to predict outcomes across cases, the critical realist notion of generalisability negates prediction in

[38] Sayer (2000) argued that critical realist research findings must offer 'practically adequate' explanations.

favour of explanation (Bhaskar 1979, p. 27). According to critical realists, prediction is futile when applied to the messy world of open systems, in which the boundary between case and context is fluid, continually changing, and irrefutably unique to each case. Instead, the aim of critical realist research is to understand how the findings were arrived at, in context, and then subsequently to explore how this context-specific explanation *may* offer insights (rather than conclusions) to similar phenomena operating in contexts with some similarities and some differences. Critical realist generalisability 'requires a heavy focus on context' (Dobson, Myles & Jackson 2007).

To this end, Chapter 9 draws on a novel framework and decision support tool, providing health policy-makers and hospital administrators with a systematic method to: i) decide whether the findings of this study may be sufficiently applicable to their own contexts (in order to warrant generalisability); and ii) if sufficiently applicable, to commence a process of theory modification in order to localise the hive model to their own contexts. The framework and decision support tool were developed by the author as a synthesis of the broader policy transfer (public policy) and theory-borrowing (management) literatures (see Appendix L).

8 DISCUSSION: THE ALFRED HIVE - A LIVING MACRO-ORGANISM?

What is destroyed when a living organism is dissected is its pattern.

– Fritjof Capra and Pier Luigi Luisi, 2014

This chapter reflects on the value of the research findings and relates these to the broader context of academic scholarship. As noted in Chapter 2, this 'broader context' is indeed broad. The ambition of this thesis was to uncover the interconnections between each of the factors and conditions that might influence hospital performance, necessitating a wide-ranging 'macro' scan of the literature. In relating the empirical findings presented herein to this macro view there are limits to the extent to which it has been possible to examine more granular aspects of the literature. However, the advantage of this abductive approach is the capacity to outline the structural and relational 'patterns' that may help explain hospital performance – thus providing a more ecological view to the function of the organisation within its environment.

The chapter begins by examining the degree to which the current findings correspond with the initial aims and questions of the study. The second section of this chapter systematically examines how the findings of the study compare with the existing quantum of academic theory and knowledge of relevance to hospital performance. Points of agreement and disagreement between existing and new knowledge are reviewed. The chapter concludes with a series of key reflections based upon the findings of research, and their position within the overarching academic literature.

8.1 CORRESPONDENCE BETWEEN EMPIRICAL FINDINGS AND QUESTIONS OF RESEARCH

This section seeks to assess the degree to which the empirical findings, herein, have adequately addressed the research questions that were initially developed to guide the study. The first research question asked: what were the key contextual conditions and organisational factors that gave rise to Alfred Health's trajectory of performance improvement and high performance? The second research question followed: how and why did these key contextual conditions and organisational factors come together to produce this result? Table 14 relates

key findings to the first research question, and Table 15 relates key findings to the second. Both tables provide cross-references to the chapter sections that correspond with the theoretical and explanatory concepts that are presented within this thesis and similarly, a link is drawn between the theoretical and explanatory concepts presented, and key critical realist constructs.

8.1.1 Research question one: what were the conditions and factors?

The first research question prompted the identification of key contextual conditions and organisational factors that may have given rise to Alfred Health's trajectory of performance improvement and high performance. As illustrated in Table 14, Chapter 6 partially addressed research question one by identifying a set of key contextual conditions for performance. These conditions included: government reforms; targets and threats; the availability (or unavailability) of resources; shifts in community values or areas of interests (e.g. a growing awareness of service quality issues); and demographic or technology-driven changes.

Chapter 6 also addressed research question one by identifying a series of organisational factors, in the form of 'events' that appeared to contribute to performance improvement at Alfred Health. These events corresponded with various strategies or actions brought about by human agency from within the organisation, including: changes to organisational structure; tactics for advocacy and threat-insulation; the active pursuit of new opportunities for learning, innovation and growth; direct campaigns and communications to shape aspects of organisational culture (patient-centred care, 'no blame' culture etc.); and ways in which motivation was boosted to serve a certain program of change (see also Table 14). These strategies are considered 'events' by critical realists (Bhaskar 1979; Wynn & Williams 2012), in the sense that they were empirically observable (as opposed to causal mechanisms which are not observable); however, these events differ from 'contextual conditions', which are also observable events. The distinction is based upon the notion that whereas contextual conditions are imposed by the external environment (perhaps drawing on external sources of agency), strategic events drew on internal sources of agency and were therefore better defined as organisational factors, or more specifically, strategic factors. Thus, material presented in the latter half of Chapter 7 also partially addresses research question one by identifying the various organisational (strategic) factors that contributed to performance results.

Table 14 How study findings address research question one

Research Question 1: What were the key contextual conditions and organisational factors and that gave rise to Alfred Health's trajectory of high performance and sustained performance improvement?			
	Explanation *(i.e. what is it about the identified factors and conditions that makes them 'key' to performance outcomes?)*	Critical Realist Construct	Corresponding Chapter Section
Contextual Conditions			
Environment A number of events that were initiated within the organisation's external environment functioned as key contextual catalysts for performance improvement at Alfred Health. These include government reforms, targets and threats, the availability (or unavailability) of resources, shifts in community values or areas of interests (e.g. a growing awareness of service quality issues), and demographic or technology-driven changes. The degree to which these external events were able to influence the internal functioning and performance of Alfred Health relates to the critical realist (ontological) 'open systems' perspective - the notion that the boundaries between various social systems (e.g. a hospital, a health system, a nation) are fluid and permeable. As a result, contextual conditions that are external to the unit of study (e.g. a hospital) are continually influenced by events occurring at other levels of the social system (e.g. the health system).			
Rationalisation reforms, new funding models and centralised hospital mergers (1980s to late 1990s)	State government-imposed rationalisation and efficiency reforms created an environment of heightened awareness of performance, increased scrutiny on processes, a reduction of available resources, and lower organisation-level autonomy.	Event Condition	Chapter 6 Section 6.1.1
Threat of closure (1995-1997)	The threat of closure increased an organisation-wide appreciation of the importance of overall performance outcomes (as opposed to performance results within parts of the organisation), affected staff morale, and increased organisational unity by fostering an organisational level identity.	Event Condition	Chapter 6 Section 6.1.3
Increased scrutiny on quality of services (from late 1990s)	An increased scrutiny on quality of services raised awareness of safety and quality issues, and promoted increased standardisation of care practices in order to guard against clinical and other errors.	Event Condition	Chapter 6 Section 6.1.1
Increased availability of government funding for equipment and infrastructure projects (1998 to 2010)	Commencing with a change in state government in 1998, the increased availability of government funding allowed for organisational strategic and operational growth, including funding for new services, facility expansion and modernisation, and the acquisition of equipment for diagnosis and treatment.	Event Condition	Chapter 6 Section 6.2.1
NEAT and NEST performance targets introduced	The introduction of the NEAT and NEST performance targets stimulated increased focus on both the need for process improvements (for the sake of	Event Condition	Chapter 6 Section 6.3.4

	financial efficiencies) and the quality and safety implications of poor patient access to care.		
Steadily increasing demand for acute services (pre-dating study to current time)	Key demographic changes, including increased demand for services, an ageing population, increased clinical complexity (due to chronic diseases and comorbidities), and advances in diagnostic and life-sustaining technology and pharmaceuticals, alongside tighter operational budgetary restrictions, provided a strong impetus for innovation and performance improvement.	Event Condition	Chapter 6 Section 6.4
Organisational Strategic Factors			
Strategy A number of strategic events functioned as key catalysts for performance improvement at Alfred Health. These included changes to organisational structure, tactics for advocacy and threat-insulation, the active pursuit of new opportunities for learning, innovation and growth, direct campaigns and communications to shape aspects of organisational culture (patient-centred care, 'no blame' culture etc.) or boost motivation for a certain change. To draw on critical realist concepts, these strategies are considered 'events' in the sense that they are empirically observable. However, these events differ from events categorised in this thesis as 'contextual conditions' in the sense that they were initiated from within the organisation, drawing on internal sources of agency, rather than imposed from the external environment, potentially drawing on external sources of agency.			
Structural devolution (1989 to 1994, and again 1997 to 2003)	Structural devolution increased individual-level initiative for improvement and innovation, and enhanced engagement and ownership of improvement processes.	Event/act Agency	Chapter 6 Section 6.2.1
Use of Kotter's 8 Steps for change (1997 to 1998)	In responding to the threat of closure, the use of Kotter's 8 Steps facilitated a heightened sense of organisational unity, facilitated a two-way flow of communication throughout the organisation (as to how the threat would be responded to by the group) and activated broad participation in improvement efforts in order to ameliorate the threat.	Event/act Agency	Chapter 6 Section 6.2.1
Brokering of investment for state-wide trauma centre (1998)	Securing resources to develop a state-wide trauma centre likely provided the organisation with a strategic point-of-difference for reputational and further resource advantage.	Event/act Agency	Chapter 6 Section 6.1.1
Ongoing patient-centred care focus (1993 to 1995, 2001 to 2003 and later, the Patients Come First initiative of 2011 to 2012)	A continued focus on patient-centred care contributed to a growing awareness of patient welfare and 'prepared the ground' for the later development of the hive purpose.	Event/act Agency	Chapter 6 Section 6.4

No-blame culture promoted (2000)	A focus on creating a no-blame culture contributed to a heightened awareness of the importance of group cohesion and collaboration, and 'prepared the ground' for the later development of the hive belonging.	Event/act Agency	Chapter 6 Section 6.2.1
Advocacy push-back to government reforms (2000 to 2003)	Public criticisms of various government funding reforms (published within annual reports) contributed to dialogue around those reforms, and likely positioned the organisation in a place of some authority.	Event/act Agency	Chapter 6 Section 6.2.1
Active strategy to pursue donations and research funding (from 2001 onwards)	The active pursuit of public and corporate donations (ahead of its time compared with other peer hospitals) and the pursuit of research funding brought large volumes of funding, and reputational gains to the organisation.	Event/act Agency	Chapter 6 Section 6.2.1
Introduction of new technologies and processes for quality and safety (from 2004 onwards)	The introduction of new technologies for quality and safety increased the efficiency and accuracy of many processes throughout the hospital network.	Event/act Agency	Chapter 6 Section 6.2.1
Alfred Centre opened for elective surgery (2006-2007)	Securing resources to build and operate the Alfred Centre increased the service capacity, efficiency and quality of surgical services performed.	Event/act Agency	Chapter 6 Section 6.2.1
Structural integration (2010)	A process of structural reorganisation to increase integration between various campuses and parts of the organisation increased efficiencies and consistencies of policy and practice, and influenced the sense of cohesion and collaboration among staff.	Event/act Agency	Chapter 6 Section 6.3.3
Trust-building tactics, such as elective surgery 'anti-gaming' (during the 2010s)	The use of trust-building and organisational cohesion tactics. For example, in response to referring surgeons 'gaming' the system by exaggerating the category of urgency for some elective surgery patients (so that it would be more likely that those patients would be treated within the clinically recommended timeframe), leaders arranged to guarantee that all patients would be treated within the clinically recommended timeframe, so long as gaming behaviour ceased.	Event/act Agency	Chapter 7 Section 7.2.1.3
Timely Quality Care (TQC) introduced (2012 to 2013)	The TQC program brought staff together, combining the information-action and discussion-consensus cycles to create an explicit hive purpose. Through this process staff designed guiding principles and rules to provide a structure to the ongoing balance between consistent practices and individual judgements that seek to flex consistencies where required for the hive purpose.	Event/act Agency	Chapter 6 Section 6.3.4
Organisational attributes			
Hive Factors			

Hive attributes and cycles (including management cycles) functioned as key capabilities for both high performance and performance improvement. That is, initially the development of the organisation's hive-like characteristics was critical to the capacity to improve performance, and thereafter, hive attributes were central to the organisation's capacity to continually sustain high performance. To use critical realist language, the hive factors broadly constitute a distinct social structure: 'a set of internally related objects or practices' (Sayer 1992, p. 92) made up of entities (the hive attributes, cycles and management cycles) with certain causal powers and later, tendencies.			
Hive Attributes			
Hive purpose	The hive purpose, described (somewhat simplistically) as care excellence for patient wellbeing, functioned as the shared motivating force for group decisions and behaviours. The hive purpose was central to the organisation's capacity for performance improvement and sustained high performance as it aligned with key measures of organisational performance.	Entity Causal power Tendency	Chapter 5 Section 5.1.1
Hive energy	Hive energy provided the impetus for coordinated action in fulfillment of the hive purpose.	Entity Causal power Tendency	Chapter 5 Section 5.1.1
Hive consciousness	Hive consciousness allowed individuals to transcend sub-group boundaries in order for them to understand how decisions at the individual level might have implications for the fulfillment of hive purpose at the organisational level.	Entity Causal power Tendency	Chapter 5 Section 5.1.2
Hive belonging	Hive belonging fostered trusting, mutually respectful and team-oriented behaviours which allowed for the fulfillment of the hive purpose by promoting collaboration, communication and by reducing intra-organisational conflict.	Entity Causal power Tendency	Chapter 5 Section 5.1.3
Hive Cycles			
Information-action	The information-action cycle provided the organisation with a simple, structured and reliable routine to seek out new information and to use this information to inform changes in process and procedure for performance improvement.	Entity Causal power Tendency	Chapter 5 Section 5.1.4
Discussion-consensus	The discussion-consensus cycle enabled the organisation to routinely direct power for decision-making to various parts of the organisation, thus drawing on the best sources of information for improvement and engaging and empowering those needed to carry forward any improvements.	Entity Causal power Tendency	Chapter 5 Section 5.1.5
Consistency-flexibility	The consistency-flexibility cycle created the organisational balance required in order to simultaneously stimulate and support new ideas for innovations and	Entity Causal power Tendency	Chapter 5 Section 5.1.6

	improvements and, otherwise, to ensure routine adherence to organisational processes for the maintenance of consistent performance.		
Hive Management Cycles			
Growth & opportunity-scouting	The growth routine and opportunity-scouting management cycle involved organisational leaders actively pursuing opportunities to learn and to gather new resources from the external environment for localised application and performance improvement.	Entity Causal power Tendency	Chapter 5 Section 5.1.7
Advocacy & threat-insulation	The advocacy routine and threat-insulation management cycle enabled organisational leaders to guard against threats posed by the external environment by i) seeking to shape the external environment; and ii) via a process of modifying external threats as they enter the organisation so that they match (rather than conflict with) the hive attributes and routines for performance improvement and performance maintenance.	Entity Causal power Tendency	Chapter 5 Section 5.1.8

Another category of organisational factors that appear to have influenced the performance trajectory of Alfred Health include the hive attributes (as presented in the first half of Chapter 5). Rather than strategic factors, these factors related to a set of organisational attributes that shaped the organisation (and, in turn, were shaped by the organisation) over time. As described in Table 14, these key attributional factors broadly relate to Alfred Health's organisational culture; however, they also appeared to have implications for organisational structure, and can be linked to the organisation's leadership profile at specific points in time. The hive attributes were 'cultural' in the sense that they broadly relate to 'the way things are done around here' via a cohesive set of attitudes and behaviours that appear to be shared among staff of the organisation. In turn, this provided a basis for coordinated efforts to improve and sustain performance.

The degree to which the hive attributes address research question one as opposed to research question two, is a somewhat sticky issue. The hive attributes can be viewed as key organisational factors (research question one) by identifying each of the components of the hive model (i.e. hive attributes such as hive purpose, or hive cycles such as the information-action cycle or the threat-insulation management cycle). However, the way in which the components of the hive model came to function and interact as an entire social structure, relates to the focus of research question two on 'how and why' these attributes may have contributed to Alfred Health's performance trajectory.

To shed light on this distinction using critical realist concepts, each hive factor was, in essence, a structural entity (an organisational factor), with distinct causal powers that, over time, evolved to form causal tendencies (the 'how and why' of performance). Another explanatory metaphor (which, interestingly, is frequently employed by scientists of eusocial insects (Seeley 2010)) may be useful here. 'Tendencies' (Bhaskar 1979) could be said to resemble the firing of a neural pathway in the human brain. A structural entity (a neuron, or a hive-like characteristic) might be capable of acting in a certain way (the entity's casual power); however, it is not until the entity does so with regularity that it becomes a tendency. This does not guarantee the ongoing or unfaltering 'firing' of that particular tendency; indeed, there may be a series of intervening events or the introduction of a new entity with conflicting causal powers that undermine its function. For instance, the firing of a particular neural pathway may be disrupted by injury and trauma, or the brain may learn a new skill which changes the flow of information. So too, a particular hive attribute might be disrupted by an

environmental threat or might evolve differently with the introduction of a new leader, new technologies or new innovations. The notion of 'tendency' describes a propensity towards a particular way of working, given the specific set of contextual circumstances operating at the time. Therefore, when viewing hive attributes as singular entities (that are not yet 'firing' as tendencies) they can be identified as key organisational factors as per research question one. However, when the hive attributes act and interact together (and interact with various events) they become causally relevant, and as a result, relate to research question two.

8.1.2 Research question two: how and why?

The discussion above provides a useful segue to the second research question – the 'how and why' of Alfred Health's performance and performance trajectory – and how this question links to key theoretical and explanatory propositions presented in the latter sections of Chapters 5, 6 and 7. As captured in Table 15, the hive metaphor and model as described in Chapter 5, provides the first step to addressing this question, essentially by shedding light on the 'how' of performance. The temporal mechanisms that influenced performance improvement, as described in earlier sections of Chapter 7 provide a second answer, relating to the 'how' and a little of the 'why' of performance improvement. Further, the mechanisms of power and agency, as described in Chapter 7, as corresponding with the 'why' and a little of the 'how' of performance improvement, complete the explanation. The discussion below draws on various notions of generative and causal mechanisms (from the critical realist and complexity lenses) in order to highlight the ways in which the second research question is addressed.

The latter sections of Chapter 5 moved beyond the identification of hive model components and begin to describe the hive model as an intact and functional social system. As each component of the hive model evolved to form a tendency, the interactive net result was a hive-like culture and social structure. As argued in this thesis, this social structure explains *how* Alfred Health has been able to sustain its high performance over many years. The degree to which the hive social structure was self-sustaining (i.e. perpetually moving and reformulating itself towards some sort of homeostasis) relates to the complexity science notion of autopoiesis, which is also discussed by critical realists (Hartwig 2015, p. 46) and included in Table 15.

The pairing of the Greek word 'auto', meaning 'self', and 'poiesis', meaning 'production', refers to a system that is capable of reproducing and maintaining itself (Capra

& Luisi 2014). The concept is borrowed from the biological sciences (particularly the biology of cells). The application of autopoiesis to the social sciences is steeped in controversy (Kay 2001; Mingers 1992, 2002, 2004; Zelený & Hufford 1992; Zolo 1992), as some scholars argue that to be 'self-producing' requires or implies that the system is closed, which would negate an open systems perspective. However, critical realists with a leaning towards systems and complexity thinking, such as John Mingers, have described autopoietic systems as 'organisationally closed but interactively open' (Hartwig 2015, p. 46; Mingers 2004, p. 404). Living systems are neither isolated from their environments, nor do they primarily function to convert environmental inputs into outputs for use externally; rather, inputs are used by the living system to transform 'themselves into themselves' (Mingers 2004, p. 404), in a self-perpetuating cycle.

It is not the purpose of this thesis to settle the debate as to whether the concept of autopoiesis is or is not applicable to social structures (indeed, this could easily be the subject of an entire thesis); however, it is worth noting the *potential* alignment between the hive model and the notion of autopoiesis. This is particularly so in light of the evidence presented in Chapters 6 and 7 as to the hive model's inherent dynamism and reliance upon the ongoing flow of internal cyclic processes. Perhaps the greatest indicator of autopoiesis at Alfred Health is the process of localisation that seems to occur, which ensures that both 'positive' inputs (e.g. innovations) and 'negative' inputs (e.g. government impositions) entering from the external environment are adequately modified to suit the internal context of the organisation. This might indicate that a strong yet permeable boundary to the social structure and social system exists (a little like the walls of a biological cell), allowing inputs to enter the organisation, but ensuring that important internal characteristics (the hive attributes) and internal processes and feedback loops (the hive cycles) are adequately protected, enabling these elements to function and continually regulate the system towards a self-sustaining homeostasis.

Table 15 How study findings address research question two

Research Question 2: How and why did these key contextual conditions and organisational factors come together to produce this result?				
'How' and 'Why' theoretical explanations				
(key questions of causality are in italics)	Proposed causal mechanism	Example from the data	Critical Realist construct	Corresponding chapter section
Hive Model				
Hive attributes Hive cycles Hive management cycles	• The hive model functions as both a metaphor and model. • As a biomimetic metaphor, an association is drawn between the ways in which Alfred Health operates, and the social patterns of some eusocial species (e.g. honeybees). • The hive model provides an abstracted map of Alfred Health's pattern of organisation (social structure), including the presence and function of shared values (hive attributes) and routines (hive cycles) that are mutually reinforcing and continually interacting. • The hive model provides a processual blueprint for an alternative social structure to that of the more traditional hierarchy. The alterative social structure is best described as a model for an autonomous, self-supporting heterarchy, made possible through the cohesive enactment of shared attitudes and values.	e.g. examples of Alfred Health's more heterarchical way of working include: the two-year process of developing TQC principles with broad participation of from all staff; and the elimination of surgeon 'gaming' behaviour through dialogue and exchange rather than doctrine.	Social structure Autopoiesis	Chapter 5 Section 5.4
Temporal Mechanisms				
Non-linear evolutionary steps	• Roughly-speaking, hive energy and the information-action cycle matured first, followed by hive consciousness and the discussion-consensus cycle, and last, hive belonging and a functional balance between consistency and flexibility. • These 'evolutionary steps' are best viewed as non-linear, in the sense that they appeared to be dynamic,	e.g. an example of staged non-linearity is hive consciousness which emerged initially as a heightened awareness of the importance of performance for the sake of survival, and later, in	Causal chain	Chapter 7 Section 7.1.1

	somewhat vacillating, partially overlapping and mutually reinforcing.	conjunction with a strong hive purpose, became more focused on broad organisational awareness for excellent patient care.		
The path dependency of trust	• The key rate-limiting (or rate-facilitating) factor that determined the progression from one evolutionary step to the next was the level of trust present within the organisation.	e.g. interviewees were sceptical as to whether TQC could have been introduced earlier, remarking that staff would have been 'suspicious' (untrusting) of the process.	Stimulating, releasing and enabling conditions	Chapter 7 Section 7.1.2
Mechanisms of Power & Agency				
Strategy vs context *To what extent were performance outcomes caused by contextual conditions and to what extent were they caused by active strategies and actions taken by leaders?*	• Performance outcomes arose from the interactive mix between contextual condition/s and responses to those condition/s by leaders and staff.	e.g. organisational threat of closure and the use of Kotter's 8 Steps in response to the post-threat period of heightened fear, energy and unity.	Agency and causal intervention Conditionality Open systems	Chapter 7 Section 7.2.3
Control vs influence *To what extent were performance outcomes caused by the direct control of leaders or were there limits to the capacity for leaders to control outcomes?*	• Leaders had greater control over organisational structure and behavioural aspects of organisational culture (e.g. hive cycles and management cycles), and less control over attitudinal aspects of culture (e.g. hive attributes). • Leaders were able to influence attitudinal aspects of culture via: changes to organisational structure; behaviour modelling over a long period of time (due to longevity of leadership appointments); encouraging and rewarding desired behaviours; and planned strategies for change.	e.g. structural devolution and its positive effect on motivation for improvement (hive energy) and, eventually, negative effect on cohesion (hive consciousness).	Multiple agents Agency and causal intervention Emergence	Chapter 7 Section 7.2.3

Planned vs emergent *To what extent were performance outcomes caused by planned improvements, or was change more emergent, resulting from the interaction of many factors?*	• Performance improvement initiatives were both planned and, to a degree, emergent. In order for a planned change to gain momentum it often needed to switch to a more emergent form, in which staff began to take ownership over the change process, form collective decisions about how the process would be conducted, and directly influence the outcomes of the process.	e.g. TQC was initially conceived and planned by Executives; however, it succeeded due to local ownership of the process and resulting principles of timely, quality care.	Intentional agency and causal intervention Emergence	Chapter 7 Section 7.2.3
Leader's worldview (attitude)	• Continually achieving the balance between 'strategy and context', 'control and influence', and 'planned and emergent' change required that successive leaders share a more heterarchical than hierarchical understanding of power.	e.g. from the mid-1990s leaders of the organisation rejected the traditional role of a leader as 'commander' and began encouraging shared decision-making.	Agency Attitudes as precursors to behaviours	Chapter 7 Section 7.2.1
Leader's nous (discernment & behaviour)	• Continually achieving the balance between 'strategy and context', 'control and influence', and 'planned and emergent' change required that leaders be capable of: i) quite quickly gauging the context of the organisation, both in terms of external conditions (shifts in regulations and reforms etc.) and internal conditions (organisational structure and culture imbalances); ii) tapping into an understanding of staff perceptions (or blind spots) and their willingness for change; and iii) forming strategies that take advantage of these 'ripe' conditions for change. • And, in fulfilling the heterarchical worldview, leaders developed strategies to direct decision-making power to those in the organisation who were best informed and best positioned to make those decisions (via the discussion-consensus cycle); encouraged group-led improvements (via the information-action cycle); and	e.g. Dr Michael Walsh's process of organisational devolution announced seven weeks after his commencement as Chief Executive; and Andrew Way's structural integration program that occurred within one year of his commencement as Chief Executive.	Agent reflexivity Intentional agency and causal intervention	Chapter 7 Section 7.2.2

	remained open to suggestions and new innovations introduced by staff (via the consistency-flexibility cycle).			

The suggestion that the hive model developed in 'non-linear evolutionary steps' relates to the critical realist notion of causal chain (Hartwig 2015) (as captured in the second section of Table 15). In much the same way as the hive model evolutionary steps are regarded here as non-linear, critical realists temper the idea of a static or simplistic 'sequence' of events, by suggesting that causal chains are comprised of: generative mechanisms that exercise their causal powers 'rhythmically' (rather than sporadically or absolutely), and which are subject to the mediation of other entities (and their causal powers) and human agency (Hartwig 2015, p. 58). According to critical realism, the co-determination and interaction between each of these component features may create a causal chain which, in turn, forms a 'concretely singularised outcome' with various consequences and feedback effects (Hartwig 2015, p. 58). Chapter 6 proposed that the causal chain that (may have) enacted the hive model was itself path-dependent upon the level of trust within the organisation. Again, in critical realist terms this might relate to the notion of stimulating, releasing and enabling conditions (Hartwig 2015, p. 58) and, in the case of the hive model, the particular mediating force of agency.

The final section of Table 15 relates the second research question to the theorised mechanisms of power and agency outlined in Chapter 7. Discussion about these mechanisms began with three key questions, which essentially attempted to outline (and problematise) the extent of human influence in bringing about the performance outcomes of Alfred Health. These questions resonate strongly with various critical realist concepts about agency and causality, including causal intervention, intentional agency, and emergence in open systems. Causal intervention refers to the capacity for a person or persons to bring about a state of affairs that would not otherwise have been obtained without the interaction between the person and the 'openness of the world' (Hartwig 2015, pp. 18-19). Intentional agency relates to the capacity of humans to go beyond simply initiating occurrences or changes in ways that are purposeful. Rather, it is also the capacity to monitor and control these occurrences and their effects (termed 'reflexive monitoring'), and 'to monitor the monitoring' of the occurrences in order to reflect and comment upon them (Hartwig 2015, pp. 18-19).

Emergence refers to the notion that entities or systems are dependent upon other entities or systems, and that therefore, changes in one entity (a person, for instance) will necessarily bring about changes in another (the organisation, for instance); however, the changes themselves cannot be reduced to the components or causal powers of either entity (Hartwig 2015, pp. 166-167). The findings presented in Chapter 7 tended to conclude that

the influence of agency in bringing about the performance outcomes at Alfred Health was: i) partial (i.e. shared and interactive alongside other contextual conditions); ii) particular, in the sense that the extent of agency was greater and more direct in some areas (e.g. organisational structure) rather than others (e.g. organisational culture); and iii) both intentional and emergent at various points in time.

The final explanatory propositions presented in Chapter 7 suggested that the underlying impetus for the theorised hive-like social structure at Alfred Health was due to a (sustained) attitudinal shift at the organisation's leadership level, which corresponded with more heterarchical ways of working. It was subsequently argued that successive leaders shared a particular capability to progress from the attitudinal to the behavioural manifestation of heterarchy, through a rapid form of discernment captured by the notion: 'nous'. This latter concept relates to the critical realist concept, 'reflexive monitoring' (as introduced above), which, it has been suggested, corresponds with both retrospective and anticipatory modes of discernment and reflection (Hartwig 2015, p. 18).

8.1.3 The degree to which research questions were addressed by empirical study

In order to establish the degree to which research questions were addressed by the current study, Section 8.1.1 and Section 8.1.2 examined and compared these questions with the findings of empirical research. Table 14 and Table 15 provided a framework with which to make this comparison. Comparisons revealed that the findings presented in Chapters 5, 6, and 7, and summarised and discussed in Chapter 8, have addressed the guiding questions selected for this study. The next section considers the relationship between the findings of this study and the quantum of existing scholarly knowledge.

8.2 COMPARISON OF THE FINDINGS WITH PREVIOUS LITERATURE

Support for the conceptual framework/s

The content summarised in Table 14 can be directly related to the original conceptual framework chosen for this study (Figure 1 in Chapter 2, also reproduced below as Figure 18). For instance, as shown with Figure 18 the contextual conditions identified in Table 14 relate to the 'environment' category pictured on the left-hand side of the conceptual framework in Figure 18. Similarly, the organisational strategic factors identified within Table 14 correspond with the 'organisational strategies' category positioned at the right-hand side of the original

conceptual framework. Finally, the 'hive factors' identified in Table 14 correspond with the 'organisational attributes' construct, positioned within the middle of the conceptual framework.

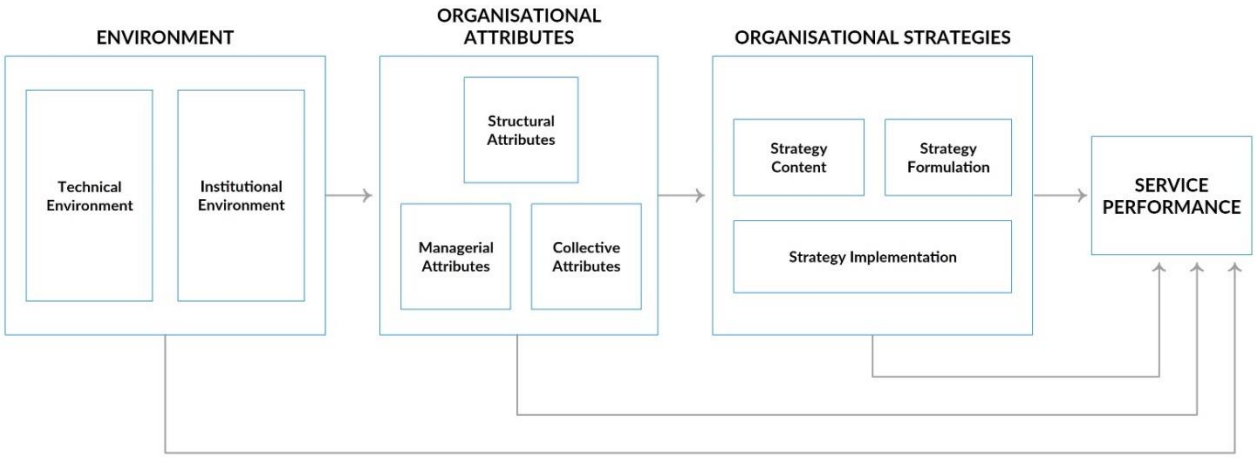


Figure 18 Triad of theoretical determinants for public service performance (adapted from Ashworth, Boyne & Entwistle 2010)

Further, the revised conceptual framework (Figure 5 in Chapter 3, also reproduced below as Figure 19) shares some alignment with the findings of this study.

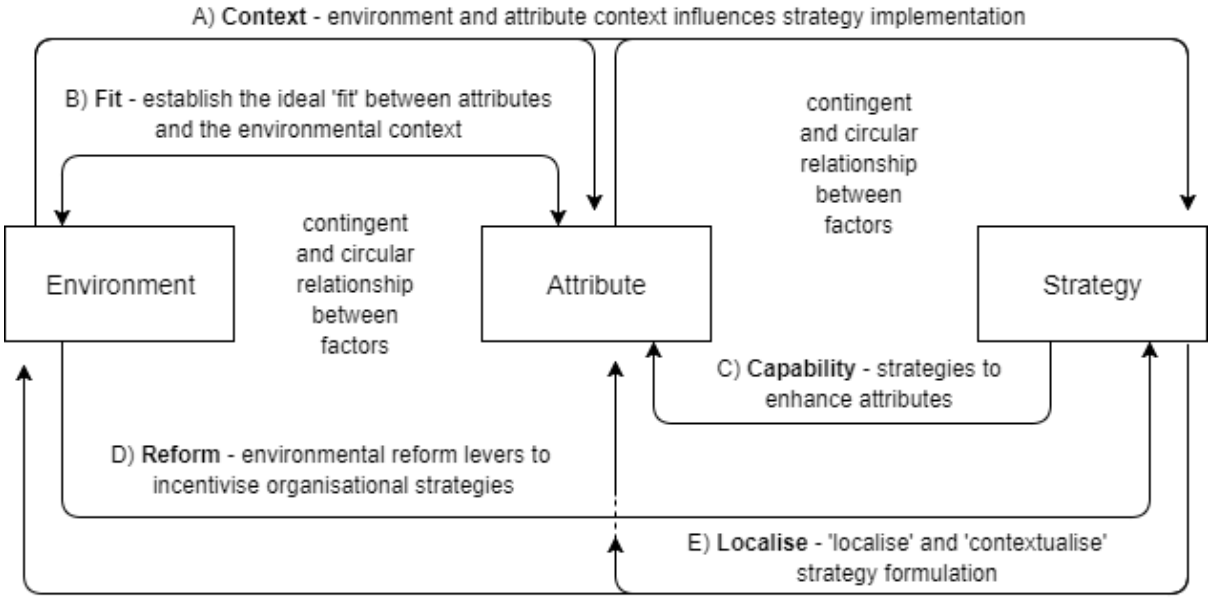


Figure 19 Interactions between hospital environment, attribute and strategy factors, as currently discussed within the literature

Each of the five 'themes' presented in Chapter 3 (listed A to E within the above diagram) describes interactions between key environmental contextual conditions, organisational attributes, and strategic factors. At a basic level, the findings of this study have indeed supported the five themes. Environmental context (e.g. patient demography, government regulations, reforms) and organisational attributes (e.g. managerial qualities) did appear to influence organisational strategy (Themes A and D). Similarly, there does appear to be a 'fit' between organisational attributes and the environmental context (Theme B). For instance, the (internally motivated) structural devolution of the 1990s following a period of externally imposed structural centralisation. Further, strategies to alter or enhance organisational cultural attributes (i.e. the hive attributes) do appear to have been used to good effect for organisational performance, for example: Kotter's 8 Steps, or the elective surgery anti-gaming strategy (Theme C). And last, as supported by the findings, an important aspect of strategy content, formulation and implementation was the 'localisation' of interventions to suit the particular set of organisational attributes (structure, culture etc.) present within the organisation at the time.

Therefore, comparisons between the conceptual frameworks chosen for this study and findings from empirical research would indicate that, at least at a rudimentary level, empirical support for the conceptual framework/s exists. However, this preliminary conclusion is muddied by two key considerations. First, the degree of empirical support for the sub-components of each category and the specific theories contained within, is yet to be established. Second, although the empirical findings of this study may offer unidirectional support *for* the conceptual framework, this is not to suggest bi-directional equivalence. In other words, although the empirical findings of this research may indeed provide support for the theories canvassed within the conceptual framework/s, it is also possible that empirical findings may extend beyond the scope of these frameworks, shedding light on areas of new knowledge. These two considerations are examined in further depth in the next section.

Support for Previous Literature

The degree to which the empirical findings of this study align with existing scholarly knowledge is summarised within Table 16 and Table 17. Table 16, which charts the alignment between single-factor explanations of performance (of relevance to public hospital settings), indicates a relatively high level of support for existing theories and explanations. This

conclusion is formed on the basis of comparison with the literature described in Chapters 2 and 3, as well as comparisons with more recently published literature (Baird, Tung & Yu 2019; Braithwaite et al. 2020a; Braithwaite et al. 2018; Goodall & Kakemam 2019; Jain et al. 2019; Ritchie et al. 2019; Robinson & Gelling 2020).

First, theories linking environmental factors with performance, including notions of both institutional and technical environments, were largely supported by the findings. For instance, as discussed in Chapter 6, government-imposed reform measures (the institutional environment (Andrews et al. 2012)) had a substantial influence upon the performance trajectory of Alfred Health, throughout the period of study. Similarly, factors associated with the technical environment (Dess & Beard 1984) such as the availability of funding and resources (munificence), increases in demand for services, and rising acuity and clinical complexity of care (complexity) played a significant part in the performance history of the organisation.

What is less clear, is the degree to which the notion of 'dynamism' (a component of the technical environment) is supported by the findings. As conceptualised by public management scholars (Andrews 2010a) environmental dynamism relates to the degree to which large and unexpected shifts in environmental circumstances affect performance. However, as a 'technical' environmental factor, this largely corresponds with instability at the consumer-level as opposed to 'institutional' instability caused by government regulations, reforms and changes. Some support for the influence of consumer-level instability (e.g. seasonal fluctuations in clinical demand, generational shifts in consumer clinical knowledge and expectations etc.) was found within the data, however indications of the extent to which this influenced the organisation's performance is more difficult to establish than a number of the other factors identified (Andrews 2010a).

The more sophisticated environmental theories, such as contingency (and configuration) theory, resource dependence theory, and institutional theory (Hatch & Cunliffe 2013) were fairly well-supported by the data. The structural 'fit' between Alfred Health and characteristics of the environment appeared to be associated, particularly regarding the adaptive advantages in adopting a less rigid hierarchical form (or the capacity to flex this form via the discussion-consensus and consistency-flexibility cycles) within a context of environmental flux and rapid change (Hatch & Cunliffe 2013). Similarly, there appeared to be support for configuration theory, whereby organisations learn to capitalise on periods of

stability by finding the 'best fit' for the particular context whilst at the same time adapting and transforming (i.e. making a quantum leap to a new organisational configuration) during times of turbulence (Andrews, Beynon & McDermott 2016). Alfred Health demonstrated this level of agility and capacity for rapid change in response to heightened turbulence, such as substantial structural change following the threat of closure, or the TQC program following the introduction of NEAT and NEST targets.

As per resource dependence theory (Pfeffer & Salancik 2003), the power imbalance and continual tension between the funder of public health services (the Victorian Department of Health) and the recipient (Alfred Health) was also evident within the data. For example, consistent with the sorts of 'buffering', 'bridging', 'adapting' and 'legitimising' organisational behaviours outlined by resource dependence theory (Pfeffer & Salancik 2003; Scott & Davis 2016) at various times the Alfred Health board took steps to 'advocate' in response to power imbalances with the Department, and the Executive selectively 'insulated' the working core of the organisation from threats imposed by the Department's exertion of influence and power. Similarly, the importance of cultivating a positive public image and reputation was apparent from the data, both from a resourcing point of view (e.g. accessing private sources of funding to reduce reliance upon the Department) and from the perspective of protecting against threats to survival (e.g. gaining the mass support of voters who can influence political decisions). This is consistent with the notion of legitimacy (which is central to institutional theory), and the associated advantages with adherence to societal norms and expectations (Meyer & Rowan 1977).

Theories linking organisational attributes with performance were also largely supported by the empirical findings of this study. Organisational structure and governance (Andrews 2010b; Campbell et al. 1974) were closely associated with performance at Alfred Health, across each of the dimensions of organisational structuring: 'centralisation', 'formalisation' and to a lesser extent, 'specialisation' (Hage & Aiken 1967). Shifts in more and less centralised organisational structures, for example, Alfred Health's decentralisation during the 1990s and structural integration in the 2010s, were associated with explanations for improvement in organisational performance and performance capacity. Further, the exchange between more and less formalised governance arrangements, for instance, formal committee structures alongside the capacity for more flexible clinical judgement and practice, were identified during data analysis as important factors for performance.

With regards to 'specialisation' the relationship was less clear cut. For example, although there is a continuing trend towards medical specialisation, some interviewees countered this, noting the importance of Alfred Health's strong general medical department and the relationship between general medicine and performance indicators such as patient flow, discharge rates, and emergency waiting times. Arguably, this may indicate a partial correction to the move towards structural specialisation. In combining these elements of organisational 'structuring', Alfred Health appeared to fit the criteria for a professional bureaucracy (Lunenburg 2012; Mintzberg, Ahlstrand & Lampel 2009). That is, the organisation tended to operate with a relatively formal and centralised structure, balanced with a *relatively* specialised professional workforce who demanded high levels of autonomy.

Theories of leadership that were surveyed in Chapter 2 (Petrovsky 2010) were supported by empirical findings, particularly: the notion of leader as influencer rather than controller (Heifetz, Grashow & Linsky 2009; Petrovsky 2010; Stogdill 1950); the importance of leadership stability and longevity (Finkelstein & Hambrick 1990); and personal characteristics of leaders that align with the notion of 'transformational leadership' (Bass & Avolio 1993). The complexity science notion of the 'adaptive leader' shared a particularly close alignment with the findings, especially the emphasis upon: the need to gauge and iteratively respond to organisational context; non-hierarchical ways of working, including more distributed approaches to decision-making and problem solving; the importance of group-level cohesion and belonging; and the need to respect and encourage individual autonomy within the organisation (DeRue 2011; Heifetz, Grashow & Linsky 2009).

Table 16 The extent to which the findings of this study support existing single-factor explanations

Existing Explanation	Supported by Findings (yes/no)	Example / theoretical explanation from the empirical findings	Corresponding chapter sections
Environment Explanations			
Institutional environment	Yes	Institutional environment e.g. government-imposed changes such as the 1980s/90s rationalisation reforms, inquiries and audits, hospital accreditation, the introduction of case-mix funding in the mid-1990s, the threat of closure in the mid-1990s, introduction of NEAT and NEST targets in the 2010s etc.	Chapter 6 Sections 6.1, 6.2 and 6.3
Technical environment	Yes Yes Partially	Munificence e.g. fluctuations in the availability of funding coinciding with changes in government. Complexity e.g. increasing trend of clinical complexity and acuity, and increasing availability of clinical technologies. Dynamism e.g. fluctuations in clinical demand on a day-by-day, week-by-week, or month-by-month basis (however an overarching and predictable trend of year-on-year increased demand for services).	Chapter 6 Sections 6.1, 6.2 and 6.3
Contingency and configuration theories	Yes Yes	Contingency theory e.g. the 'fit' between organisational structural characteristics and the environment was apparent at Alfred Health. In particular, a more 'organic' (less hierarchical) organisational form corresponded with environmental conditions that were in flux. It is less clear how Smith and Kaluzny's (1975) structural-environmental typology fits with the Alfred Health experience. Configuration theory e.g. the capacity for Alfred Health to respond to periods of environmental stability with structures that 'best fit' those conditions, whilst also responding to turbulence with rapid adaptation (e.g. TQC in response to the introduction of NEAT and NEST targets).	Chapter 6 Sections 6.3.3 and 6.3.4
Resource dependence theory	Yes	Resource dependence theory e.g. the importance of organisational agency (e.g. capacity to both 'advocate' and 'insulate' from external threat) as part of the inter-dependent dynamic between the Victorian Department of Health and Alfred Health.	Chapter 5 Section 5.3
Institutional theory	Yes	Institutional theory e.g. the importance of cultivating a positive public reputation and sense of legitimacy through public outreach and engagement, and the careful management of media scandals. This arguably provided Alfred Health with more political leverage and further protection against external threat.	Chapter 5 Section 5.3 Chapter 6 Section 6.4

Attribute Explanations			
Organisational structure & governance	Yes Yes Partially Yes	Centralisation e.g. centralised hospital network mergers in the early 1990s, organisational structural devolution in the mid-1990s, and structural integration in the early 2010s. Formalisation e.g. via governance mechanisms including executive structure, committees, clinical governance etc. Specialisation e.g. high degree of professional specialisation, with demands for autonomy (professional bureaucracy). A strong general medical department (somewhat reversing the trend of specialisation) was linked to enhanced performance on indicators such as patient flow, discharge rates, and emergency department waiting times. Professional bureaucracy e.g. the elective surgery 'gaming' behaviour example provides evidence for the existence of clinicians, as employed professionals, having high levels of direct control and agency over their work, and the necessity for collaboration and consensus between administrators and clinical staff in order to bring about lasting changes.	Chapter 6 Sections 6.2.1 and 6.3.3 Chapter 5 Section 5.1.6
Leadership	Yes Yes Yes	Influence e.g. public sector leaders' tendency towards influence rather than 'rule'. Stability and longevity of leadership e.g. compared with peer organisations, a very low turnover of leaders during the period of study. Personal characteristics of leaders e.g. alignment between 'motive, means and opportunities' for a hive-like culture. As argued, leader's worldview and leader's nous were precursors and facilitators to the heterarchical social structure that developed. Transformational leadership e.g. personal characteristics of successive Alfred Health leaders correspond with notions of transformational leadership: i) supportive of the personal and professional development of employees; ii) exemplifying moral standards and expecting the same of others; iii) fostering a work environment with clearly articulated values, priorities and standards; iv) actively nurturing a culture that moves away from self-interest towards a sense of common good; v) placing value on authenticity, cooperation and open communication; vi) providing coaching and mentoring to staff to take decisions and take ownership of specific areas of activity.	Chapter 7 Section 7.2

	Yes	Adaptive leadership e.g. alignment between the adaptive leadership notion of non-hierarchical leadership practice (including group-level decision-making, an emphasis on cohesion, individual autonomy) and hive model concepts such as heterarchy, hive belonging, consistency-flexibility.	
Organisational culture	Yes Partially	Cultural symbols, practices and values e.g. hive values, hive routines, and the significance of cultural 'brands' such as TQC, and the associated principles of TQC known throughout the organisation. As argued, the hive attributes and hive cycles ('the hive model') is a model of organisational culture, spanning both attitudinal and behavioural aspects of shared group characteristics. Competing Values Framework (CVF) e.g. the Alfred Health culture, as described by the hive model, does not necessarily correspond with one of the four cultures identified by the CVF: clan, developmental, hierarchical, and rational. Rather, the organisation demonstrates partial alignment with each of these categories, perhaps with a leaning towards the clan and developmental cultures (empirical testing would be required in order to verify any hypotheses).	Chapter 5 Sections 5.1 and 5.4 Chapter 6 Section 6.3.4
Human Resource Management (HRM)	Yes Yes Yes Yes	Best Practices theory e.g. many of the universal HR 'best practices' (identified by Pfeffer (1998)) were evident at Alfred Health, including emphasis on selective hiring (for cultural 'fit'), use of self-managed teams, decentralisation of decision-making, reduced status distinctions between management and other staff, and information sharing. Best Fit theory e.g. environmental factors (financial austerity, regulation and inspection, increased demand for services etc.) do appear to have had an impact upon key HR issues at the case site, including increased intensification of work, high staff turnover, etc. AMO Framework e.g. at Alfred Health, employee's abilities (A) are shaped by hiring practices and professional development opportunities (e.g. 'Top 100' leadership training); motivation (M) is shaped by staff induction, incentives etc.; and opportunities (O) are provided for staff to directly participate and influence improvement efforts. Micro-level HRM theories e.g. employee experiences of HRM practices are actively monitored via staff surveys etc.	Chapter 5 Section 5.1.5 Chapter 6 Sections 6.3.5 and 6.3.6
Resource-based theories	Yes	Organisational capabilities e.g. as argued, the organisation's capability for improvement stemmed from the development, presence and maintenance of hive	Chapter 5 Sections 5.4

	Yes	attributes and the continued functioning of the hive cycles towards ongoing adaptation and improvement (dynamic capabilities).	
Strategy Explanations			
Strategy	Partially Yes Partially	Strategy Content e.g. when asked directly about the degree to which Lean-thinking type methodologies were significant to the success of the TQC program, interviewees tended to suggest that Lean methodology itself was secondary to the broader process of change within which it was used. Strategy Formulation e.g. The process with which strategy was formed appears to be highly important. For instance, the discussion-consensus cycle is an example of group-level strategy formulation. Further, the process used to tailor and localise theory or change methodology to suit the organisation was cited as an important feature of Alfred Health's capacity for improvement. Strategy Implementation e.g. although empirical evidence would suggest that the implementation of formulated strategies was indeed essential in order for improvements to be made, it appears to be less a case of top-down planned implementation than a combination of goal-driven change with the capacity for flexibility and iterative improvement.	Chapter 5 Section 5.1.5 Chapter 6 Section 6.3.4 Chapter 7 Section 7.2.3
Innovation	Yes Yes Yes	Innovation types e.g. each of the various innovation types were evident at Alfred Health, for instance, organisational process innovations (new clinical guidelines, or the use of process improvement methods such as productive ward or Lean Thinking as part of TQC), organisational innovations (TQC, Kotter's 8 Steps), administrative innovations (a move towards more consensus-based modes for decision-making), marketisation innovations (i.e. in the 1980s and 1990s in response to rationalisation reforms), technological innovations (the BRIDGE software, CareTV for discharge transition support), ancillary innovations (inter-organisational collaborations with other hospitals for the delivery of complex obstetrics to Sandringham Hospital patients). Performance gap theory e.g. motivation for innovation inspired by a 'felt need', as per Dr Michael Walsh's opening speech to the organisation in July 1997. Diffusion of innovation e.g. the 'help it happen' diffusion of innovation perspective best aligns with the balance observed at Alfred Health between planned and emergent change.	Chapter 6 Sections 6.1.1, 6.2.1 and 6.3.1 Chapter 7 Section 7.2.3

Learning	Yes Yes Yes	Organisational learning e.g. knowledge acquisition (through 'scouting' ideas from high-performing peer organisations, examination of internal data sources), information distribution (through committees and meetings e.g. weekly access meetings), information interpretation (via localisation of new information), and organisational memory (through the use of policies and procedures). Double-loop learning e.g. results from the audit of clinical errors are used to inform ongoing policy and procedure changes at the case site. Benchmarking e.g. central importance of the Health Roundtable to performance improvement strategies.	Chapter 5 Sections 5.1.4 and 5.3

The association between organisational culture and performance outcomes (Davies, Nutley & Mannion 2000) was strongly supported by the findings of the study. The hive model is essentially a description of the various cultural 'symbols, practices and values' that provide an explanation for both the process of performance improvement, and the performance outcomes themselves. However, the Competing Values Framework (CVF) (Jacobs et al. 2013), a prominent model of organisational culture discussed within the literature, did not align well with the findings. Based upon the empirical data and thematic analysis, Alfred Health appears not to fit neatly within any of the identified cultural 'types' of the CVF (Jacobs et al. 2013).

Human resource management theory (Boxall & Purcell 2000) and the organisational capabilities and dynamic capabilities perspectives (Piening 2013) (from the resource-based view (Andrews, Beynon & McDermott 2016; Ferlie & Ongaro 2015)) were also strongly supported by the findings. Resource-based theory views organisations as context-specific 'bundles' of tangible and less tangible resources that are developed over time and resist being shared, mimicked or transferred to other settings (Barney 1991). The hive attributes can be viewed as an example of dynamic capabilities (Piening 2013) - particularly the 'hive cycle' behavioural routines that appeared necessary to bring about performance improvement. In turn, these dynamic capabilities might arguably have been supported by a set of HRM (best) practices that: 'fit' environmental circumstances; respond effectively to the experiences of Alfred Health staff (e.g. via staff surveys or direct dialogue); assist staff to increase their abilities (through professional development), and motivation (via incentives); and provide staff with opportunities to be involved in improvement efforts (Boselie, Dietz & Boon 2005).

Theories linking organisational strategy with performance (Walker 2010b) were also largely supported by the empirical findings of this study. Mechanisms for both innovation and learning also appeared to be prominent at the case site. For instance, supporting evidence for each of the various 'types' of innovation identified within the literature (Daft 1978; Damanpour 1987; Damanpour, Szabat & Evan 1989; Edquist, Hommen & McKelvey 2001; Hipp, Tether & Miles 2000; Schilling 2010) was found (see Table 16 for specific examples). There was also support for the 'performance gap' theory (Rainey & Ryu 2004), and the sorts of theoretical concepts and constructs framed by the 'help it happen' perspective introduced within the diffusion of innovations literature (Greenhalgh et al. 2004). Further, each of the concepts relevant to organisational learning theory (Huber 1991) aligned with the empirical findings of this study: the process of knowledge acquisition (through

'scouting' ideas from high-performing peer organisations, examination of internal data sources); information distribution (through committees and meetings e.g. weekly access meetings); information interpretation (via localisation of new information); and organisational memory (through the use of policies and procedures). Benchmarking (Drew 1997) was also found to be of particular importance to the case site and hive model ('scouting' and the information-action cycle), and the notion of double-loop learning (Robinson 1991) corresponds well with the cyclic attributes for improvement described by the hive model.

The findings of this study make less of a theoretical distinction between strategy content, strategy formulation and strategy implementation than what is conceptualised by the literature (Walker 2010b). That is not to suggest that the theory produced by this study does not consider each of these elements of strategy important; rather, there is a suggestion that these categories are, at a functional level, more overlapping. For example, the final explanatory proposition of this thesis suggests that an important feature of strategy is a leader's capacity to gauge the particular set of environmental conditions and organisational features that are prominent at a particular time, to discern the best course of action (strategy) to take advantage of these particular factors and conditions, and to engage others in the process of strategy development (via discussion-consensus). This places a particular focus on strategy formulation (Walker 2010b), with strategy content (Rubin 1988) and implementation (Noble 1999) a somewhat natural extension of the leader's 'reading' of environmental conditions and engagement with important aspects of organisational attributes (culture, structure etc.).

Table 17 charts the alignment between multi-factor explanations of performance, indicating a relatively good alignment between the findings of this study and existing scholarly theories, again, including comparisons with more recent articles relevant to multi-factor explanations of hospital performance (Braithwaite et al. 2019; Braithwaite et al. 2020b; Churruca et al. 2019; Dixit & Sambasivan 2018; Pomare et al. 2019). The notion that there are multiple factors involved in hospital performance, across the spectrum of environmental, organisational attributional, and strategic categories of factors was well-supported by the data. There was also evidence to suggest that the factor-interactive theories aligned with findings. For instance, the eight signs of organisational receptivity for change, as theorised by Pettigrew, Ferlie and McKee (1992), correspond well with the empirical results of this study. The first 'sign' (the quality and coherence of policy, at both analytic (data-driven) and

process (policy localisation and negotiation) levels relate: first, to the information-action cycle's reliance upon data-focused problem-solving in order to develop a new policy or procedure (see Section 5.1.4); and second, to Alfred Health's capacity for the localisation of external inputs (including policies imposed by the broader environment) to suit the cultural context (see Section 5.3). The second sign of receptivity – the availability of key people to lead change efforts – was strongly supported by the data, particularly evident by the number of executive staff involved in (although not necessarily controlling) change efforts. The third, relating to the presence of intense and large-scale environmental pressures, corresponds well with the experience of Alfred Health having used the rationalisation reforms of the 1980s/90s, the 'threat of closure', and the NEAT and NEST targets as key motivators for change. The qualities of organisational culture featured as the fourth 'sign' of receptivity were largely supported by the data. These cultural qualities included: managerial capacities to work flexibly across traditional organisational boundaries with a less rigid hierarchical form (e.g. the heterarchy); to take measured risks towards improvement (e.g. leader's displays of vulnerability to foster trust); to value research and evaluation (e.g. benchmarking and rapid increases in research activity and funding from the late 1990s); to ensure that actions are driven primarily by shared values (e.g. the hive purpose) and to maintain a strong, positive sense of achievement (e.g. hive energy).

The fifth 'sign' of receptivity relates to the cooperative and collegial quality of managerial-clinician relationships, which again was well-supported by the findings (e.g. executive staff efforts to build relationships with clinicians as a high priority (see Section 7.2.1.2)). The sixth – the existence of co-operative inter-organisational networks – corresponds with data that indicated key partnerships with peer hospitals in order to manage complex clinical cases (see Section 5.1.7). The seventh 'sign' relates to the simplicity and clarity of goals and priorities (again, the hive purpose, as operationalised within the form of the TQC principles), and the capacity for these common principles to insulate the organisation from the shifting, short-term pressures imposed by the environment. The final 'sign' of receptivity suggests the importance of a sense of 'fit' between the change agenda and characteristics of the local community (e.g. workforce, local political culture). To a degree, this corresponds with empirical data and interpretation (e.g. the 'growth routine' and 'advocacy routine') which indicated the importance of managerial capacity to cultivate a

positive reputation for the organisation, in order to buffer against threats to the organisation and to advocate for further resources and actively position for other advantages.

Similarly, the 'meta-theoretical model for transformational hospital change' (Lukas et al. 2007), corresponded with empirical findings. For instance, the first of the common interactive factors identified by this research: impetus for change; corresponds with the threat of closure and the long-standing presence of hive energy at Alfred Health. The theorised importance of leaders' commitment to quality care, is evidenced by the opening speech of Dr Michael Walsh, and front-line clinician data indicating that the 'hive purpose' exists at all levels of the organisation. The active and meaningful engagement of staff in improvement initiatives and associated problem-solving corresponds with the discussion-consensus cycle. Alignment and consistency between organisational goals (e.g. hive purpose), resource allocation, and actions at all levels of the organisation (e.g. hive cycles) relate to the overarching hive model and theorised social structure of Alfred Health. The notion of organisational integration in order to bring together departments and components of the organisation relates closely to 'hive consciousness' and efforts in the early 2010s towards greater structural integration at Alfred Health.

Table 17 The extent to which the findings of this study support existing multi-factor theories

Existing Explanation	Supported by Findings (yes/no)	Explanation / Example	Corresponding chapter sections
Organisational factors	Yes	Organisational factors e.g. as a culmination of Table 16, it would appear as though the notion that multiple factors, across the full spectrum of environmental factors, organisational attributes, and organisational strategies, were involved in producing the recorded performance outcome.	Chapter 8 Table 16
Factor-interactive theories	Yes	Receptive and unreceptive contexts e.g. The presence of the eight interlinked 'signs' of receptivity were, for the most part, evident at Alfred Health. For example, the capacity and tendency to work flexibly across boundaries with less emphasis on traditional hierarchical structures. A description of correspondence with each item is detailed in the text. Meta-theoretical model for transformative hospital change e.g. the presence of the five interactive factors for transformative hospital change were largely evident at Alfred Health. For example, the commitment of leaders to quality care. A description of correspondence with each item is detailed in the text.	Chapter 7 Sections 7.2.1, 7.2.2 and 7.2.3
Complexity theories	Partially	Complex adaptive system theory e.g. the theorised components of complex adaptive systems were somewhat evident within analysis of Alfred Health data. For example, the criteria for a 'robust' system (one that self-alters in response to feedback, resulting in high levels of system resilience) and a 'massively entangled' system (producing non-linear and unpredictable changes) seemed fairly evident. The presence of 'emergence', especially in the context of 'self-organisation' is more difficult to establish, particularly if viewed from the more traditional/natural science complexity theory lens. This is because 'agency' and any degree of planned change (which was evident at the case site) somewhat negates these notions. A description of correspondence with each item is detailed in the text.	Chapter 5 Section 5.3 Chapter 7 Sections 7.1.1 and 7.2.3

There is a more complicated alignment between complexity theory and the empirical findings of this study, particularly regarding the role of human agency in contributing to outcomes at the organisational level. On many levels, the hive model appears to be a natural fit with complexity theory (Burnes 2005; Capra & Luisi 2014; Zimmerman 2011). Indeed, the biomimetic 'hive' metaphor itself is a classic example of complexity thinking (Bonabeau & Meyer 2001). The findings of this study would suggest that Alfred Health is better described from an ecological than a mechanistic perspective (Bonabeau & Meyer 2001). The Alfred Health social ecology appears to contain multiple heterogenous agents (including health professionals, managers, patients, families etc.) who are densely interconnected, and who engage in a dynamic movement of mutual influence. Similarly, as Braithwaite and colleagues (2017) have suggested, the complexity lens corresponds well with the notion that effective leadership for performance improvement must move beyond the mindset of 'command and control'. This aligns closely with the findings of the current study.

The system's 'simple rules' (Zimmerman 2011) could be described as the cultural components of the hive model. The cardinal rule (the hive purpose) places patient care and welfare above all else, with all other components of the hive culture (the hive attributes and cycles) filtered through this frame. In this sense, individuals are able to act with relative autonomy within the scope of largely implicit 'simple rules', and so the precise qualities of their behaviour, *en masse*, may be unpredictable, unfolding in non-linear and cumulative ways, with somewhat emergent effects (Zimmerman 2011). For example, as described in Section 6.3.4, although the TQC program was conceived and initiated at the executive level, it was quickly embraced by clinicians and front-line staff who then took ownership of the process, requiring executives to let go of their sense of control and allow potentially unexpected outcomes to arise. In relation to TQC, the organisation appears to have collectively articulated and crystallised a number of these more implicit simple rules in the form of explicit TQC principles, which are actively and dynamically reinforced in order to achieve a robust and resilient system (i.e. a system that is capable of self-altering in response to feedback).

As examined in Chapter 7, however, the issue of human agency somewhat undermines classic understandings of complexity, as derived from the natural sciences (Paley & Eva 2011). Paley and colleagues (2011) argued that the complexity science notion of 'self-organisation' ought not be confused with the capacity for individuals to organise themselves

outside of standard power structures (e.g. bottom-up change). Rather, the concepts of emergence and self-organisation negate purposeful design, or any sense that an organisation-wide outcome might arise from the intentions and planned actions of an individual, a few individuals, or the entire group of individuals. Emergence is conceived as resulting from aggregated individual behaviour, which is ignorant of the overarching global pattern (Paley & Eva 2011). This however, is not consistent with the findings of this study, which suggest a more nuanced balance between behaviour that was intended to (and seemed to) influence the global pattern in a certain way, alongside aggregated individual behaviour at a more micro-level, which had a cumulative effect on meso-level (organisational) outcomes and the nature of 'order' that was arrived at. The problem of human agency is, therefore, not particular to this research project, but reflects a broader issue surrounding the transfer of the complexity lens to social systems. As suggested by Capra and Luisi (2014), dismissal on this basis may be too hasty. Instead, it might be useful to introduce new theoretical dimensions to complexity thinking, in order to accommodate the dimension of human agency (Capra & Luisi 2014, p. 304).

8.3 KEY REFLECTIONS BASED ON FINDINGS

The previous section examined the degree to which existing theories were supported by the findings of this study. This analysis revealed that the current findings are in agreement with scholarly understandings of and evidence relating to hospital performance. Most existing theories were supported by the findings, and some received only partial support (e.g. the Cultural Values Framework, strategy content and implementation, complexity theories, the notion of 'dynamism' within the technical environment and 'specialisation' as part of organisational structure and governance). However, yet to be established, is the degree to which existing theories adequately 'support' (or explain) the findings of *this* study.

In other words, while there is alignment between the conceptual framework/s, existing scholarly knowledge, and the empirical findings of this study, the hive model, hive metaphor and the explanatory propositions presented herein appear to go beyond the rudimentary environment-attribute-strategy conceptual triad, and the mapping of factor-context interactions offered within the literature. Rather, the hive model provides the theoretical basis for an entire and intact social structure including the capacity for, and process with which, the social structure maintains a self-sustaining and self-correcting

balance. Further, the temporal mechanisms proposed within this thesis chart the evolution of this social structure over time, identifying the staged process with which each of the inter-dependent, mutually reinforcing factors grew and continued to change over time. Additionally, the proposed mechanisms of power and agency help to explain how individuals and groups may have influenced this development, directly and indirectly, overtly and covertly, intentionally and in less conscious ways. As argued here, this type of in-depth, mechanism-heavy explanation appears to be largely absent from the existing literature and theoretical frameworks. Potentially this may be so, because the findings of this study have attempted to make sense of Alfred Health's performance trajectory over several decades, and at the level of an entire organisational system, whereas most explanations tend to isolate one factor within the system or one set of factors whilst ignoring the entire spectrum of factors and the nature of their interactions, contributing to the system as a whole. Additionally, most existing explanations appear not to take a long-range historical and processual perspective in order to identify the subtle and slow movements, progressions and patterns over time.

Those theories that *do* recognise a broader spectrum of factors, for instance, factor-interactive theories (e.g. Pettigrew, Ferlie and McKee's (1992) receptive and non-receptive contexts for change) observe that these sets of conditions and factors function as a combined, interactive whole, creating slow and iterative change. What remained neglected, however, were insights as to *how* these factors come together and the nature of their interaction in shaping a particular outcome. By comparison, the complexity lens is unique in its capacity to explain what the hive model *is* (a set of implicit 'simple rules' for an intact social system), its overarching pattern and function (the cyclic 'feedback loops' that generate 'order' and, arguably, self-perpetuate that system in some sort of 'autopoietic' way), and how this system has come to be (via a series of adaptive, unpredictable, and somewhat emergent responses to external and internal circumstances and changes). Complexity theory is not, however, a *theory* at all (Burnes 2005). Rather, it can be described as a lens or a paradigm – an umbrella meta-theory within which subject or phenomenon-specific explanations might reside. It is therefore argued, that although problems with the issue of agency-versus-emergence persist, the hive model is best described as an example of complexity theory.

Interestingly, one important contribution of the complexity paradigm is the capacity for this lens to act as a theory-synthesiser – bridging the respective gaps between various theories related to the topic or phenomenon of interest. Complexity thinking is employed by

some scholars (Montuori 2013) as a form of overarching conceptual and structural 'glue' that harmonises theoretical pluralism. The complexity paradigm and the hive model (an example of this way of thinking) are capable of weaving together insights from seemingly disparate theoretical schools – contingency theory, institutional theory, leadership, culture, the resource-based view, learning, innovation etc. Although this synthesis must be done with some care (due to potential ontological and epistemological conflicts and contradictions between theories) the complexity lens, used in this way, helps substantiate the potentially unusual findings of this study: - that is, to have provided empirical support for so many different theories. This is particularly interesting in light of the findings from Chapter 3, in which so little empirical support was found for the various existing theories relevant to hospital performance. As noted in Chapter 3, many authors who tried to make sense of the lack of evidence at the meta-level, pointed to the confounding effects of 'context' and the high level of complexity within (and between) hospital environments. The findings of this thesis, therefore, offer support to the notion that research paradigms (e.g. logical positivism) in which researchers seek to isolate factors and variables in order to test single-factor theories, cannot adequately 'control for' the avalanche of extraneous contextual factors within complex social systems, such as hospitals. As a result, these paradigms have seemingly little to offer when confronted with questions about whole-of-organisation performance and performance improvement. It could be said: without a systems view, the system itself cannot be viewed. And if we cannot view the system, how are we to explain or influence it?

8.4 CONCLUSION

The aim of this chapter was to reflect on the degree to which empirical findings addressed the questions of the study, and second, to relate findings to the broader aims of academic scholarship and existing knowledge contained within. Current findings were found to address the research questions set out for this study. A review of how the findings compared with existing theory and empirical knowledge concluded that the hive model and metaphor provided support to most of the various theories available within the existing literature. Further however, the hive model was found to go beyond the span of existing knowledge, whether that scholarly knowledge was viewed as corresponding to isolated theories, or whether viewed as a 'patchwork' whole. A key finding of the current research was that the hive model describes an intact social structure that functions predominantly in a heterarchical

rather than hierarchical way. Strong (although partial) alignment between the model and the complexity lens was an important finding, particularly useful for supporting the overarching synthesis which brings together the various existing theories in some form of theoretical pluralism.

9 CONCLUSION

In the universe, there are things that are known, and things that are unknown, and in between, there are doors.

– William Blake

Whereas the previous chapter sought to position the findings of this study within the broader context of academic knowledge, this chapter reflects on the trustworthiness and value of those research findings, and how new knowledge may contribute to future research and to the practice of administering hospitals for improvement. The first section examines the strengths and limitations of the study, including a consideration of potential biases that may have been introduced by the method or researcher. Following this, conclusions are drawn as to the value of findings, including an appraisal of original contributions made, and what implications this may have for future research and for policy and practice.

As touched on in Part C, in order to support and enact the critical realist notion of theoretical generalisability and to consider the degree to which the findings of this research may be used in other contexts and settings, it became important to embark upon further methodological innovation. Due to the natural scope limitations of this thesis, the results of this innovation are described within the Section 9.2.3, whereas a more comprehensive account of the rationale, the method itself (the 'decision-support tool'), and how it applies to this research, is provided in Appendix L.

9.1 STRENGTHS, LIMITATIONS AND DELIMITATIONS OF THE STUDY

Critical realists assume that their findings and interpretations are false. The hope of a critical realist researcher is that future scholars may make use of their theorised approximations of the truth, in order to develop approximations that are progressively closer to reality. From this perspective, a comprehensive understanding of the strengths and weakness for the current study is essential to the continuation of the research process.

9.1.1 Delimitations

One of the foremost weaknesses (and strengths) of the current research is the breadth of the study and the minimal application of delimitations. 'Delimitations' refer to the chosen scope boundaries of a study – the characteristics and criteria of inclusion and exclusion. Scope boundaries are determined by the research objectives, research questions, theoretical perspectives, variables/factors chosen for investigation and the research population. In this study, delimitations were largely guided by adherence to the critical realist approach to case study research (i.e. retrospective, explanatory, abductive (Fleetwood 2014; Wynn & Williams 2012)). The research design, therefore, placed scope boundaries around the chosen case site organisation (and its immediate environment), but did little to constrict boundaries within those limits. In other words, drawing on the typical critical realist form (Easton 2010), the research question simply prompted an explanation as to how and why Alfred Health came to have the performance trajectory and outcomes that it did. Further, in framing this question (and research conclusions in response to this question) critical realists suggest examining the full span of available knowledge on the topic, so that these various explanations can be compared (deductively and inductively) and the best explanation selected or developed. Therefore, the study of Alfred Health did not place delimitations on the sorts of explanations and theories that were used to frame the study deductively (as per Chapters 2 and 3), and further, did not place delimitations on the sorts of factors under investigation, inductively (Chapter 4, and the findings chapters).

The strength of this approach is that, by resisting reductionist tendencies to focus on a dimension of the phenomenon of interest (i.e. by attempting to isolate the effects of hospital funding models, or HR practices, or leadership, or the use of a particular improvement strategy) it allows for a systems-level view, which in turn facilitates an exploration of the combined, interactive effects of multiple empirical dimensions. Additionally, it guards against issues associated with 'confounding variables' which typically plague reductionist research designs. For instance, if the broadest scope of available explanations and factors have been considered, both deductively and inductively, the likelihood that the research outcome is due to some other variable is far lower than a research design in which a small number of factors have been selected, and attempts are made to monitor and 'control' other variables within the messy context of an open system.

However, the great weakness of this approach is the unwieldy nature of the task. To consider *all* is to risk favouring breadth over depth – to skate along the surface of theories, explanations, factors and data in a way that might miss important detail or fail to see points of conflict between various paradigms, theories or approaches. Or otherwise, to expand the research to such a level that it creates difficulties in completing the research within known constraints (e.g. time, budget, word count). Both challenges have been observed within the current study. For instance, although they are lengthy chapters, it was not possible for Chapters 2 and 3 to engage with each of the various existing scholarly theories in great depth. As a consequence, the comparison of current findings with existing scholarly knowledge is necessarily broad. For instance, although the discussion within Chapter 8 drew an association between the findings of this study and various models of leadership, it was not possible to delve into the more granular points of comparison and contrast between, say, notions of transformative (Lukas et al. 2007) and adaptive leadership (DeRue 2011), and how they relate to the findings of this study. This is unfortunate, as a more nuanced comparison would reveal that although both models are relatively well-supported by the findings, a fundamental difference in view between leadership as a 'role' (transformational leadership) and leadership as 'process' (adaptive leadership), have quite different implications for the consideration and discussion of current research findings. However, without some level of compromise between depth and breadth, it would not be possible to adequately address the research problem of this study, which, as revealed in Chapters 1 to 4 is also central to advancing beyond recurring challenges within the public health sector.

9.1.2 Methodological strengths and limitations

Several methodological limitations are worth discussing. First, a major challenge was the lack of definitive methodological guidance provided by the critical realist literature. As introduced in Chapter 4, critical realism provides an ontological and epistemological solution to the positivist-interpretivist binary; however, to date, it unfortunately lacks clear method (Ackroyd & Karlsson 2014; Fletcher 2017). In addressing this gap, the dual aim of this study was methodological innovation as well as empirical discovery. However, there are risks in pairing method-creation with method-use, including: i) methods design error; ii) methods implementation error; and iii) a (warranted or unwarranted) undermining of the perceived trustworthiness of the research, as judged by scholars and peers. With regards to the first of

these risks, design error was indeed discovered part-way through the research process. Despite authors' claims for their compatibility, the combination of Braun and Clarke's (2006) thematic analysis method with the principles of critical realism, as articulated by Wynn and Williams (2012), uncovered inherent epistemological conflicts (refer to Appendix D). As such, and relating to the second risk - method implementation – towards the end of data analysis it was necessary to revert to more classic critical realist guidance as to the process of abduction and retroduction despite the fuzziness of this advice (Archer 1998; Bhaskar 1978, 1979; Sayer 1992). Although a clear record of decisions (and justifications for those decisions) was kept and important methodological discoveries were made as a result of encountering these epistemological conflicts (see Appendix D, Appendix I and the below section on original contributions), in the minds of some scholars, the existence of these challenges could cast doubts of trustworthiness over the study.

At a more granular level, several other limitations were encountered. For instance, the availability of documentary data was somewhat patchy (for example, annual reports between 1995 and 1997 were not available), and it is also important to recognise that these documents tended to be biased towards positive news, with implications for research credibility. There were also instances in which interview data was insufficient to make up for the absence of documentary data, for example, the poor availability of data on Jennifer Williams who was CEO of Alfred Health between Dr Michael Walsh and Professor Andrew Way.

Further, in relation to interview sampling, it is difficult to determine how representative interviewees were of the diversity of experiences within the organisation (also relating to research credibility). Although a mix between executive, middle-management and front-line clinicians was sought, the mix was not balanced equally between these categories. In part, this was due to the encountered difficulty in posing questions of organisation-wide relevance to front-line clinicians whose day-to-day experiences with the organisation related to more discrete parts of the hospital network. Further, it also speaks to the difficulty in sourcing interviewees who had been working with the organisation for long periods but had also not 'risen through the ranks' during that time. Some interviewed executive and middle-management staff had begun working with the organisation as front-line clinicians and over several decades had taken on managerial responsibilities; however, other executives had joined the organisation following managerial positions at other organisations (and from other

sectors). The issue of longevity of employment with the organisation presented a key challenge to the method, given that the interview questions prompted retrospective reflections over a range of 25 to 30 years, and there was a limited number of interviewees whose experiences with the organisation spanned that long. This, again, raises issues of the degree to which interviewees were able to faithfully represent the experiences of the organisation as a whole, over time.

An additional, yet connected, set of limitations relates to the degree to which what was measured in interviews can be trusted to represent reality. The set of semi-structured interview questions used was quite broad and it was not always possible to elicit content on every aspect of the interview guide within the natural time constraints for interview, as often the interviewees were only available for limited timeslots. Additionally, self-reported data are also subject to several biases. For instance, interviewees may have a tendency towards selective memory (favouring some events and not others). Further, their capacity for longitudinal memory may be compromised leading to 'telescoping' (recalling events that occurred at one time as if they occurred at another); or otherwise biased due to 'attribution error' (attributing positive events and outcomes to one's own agency, attributing negative events and outcomes to external forces); or 'exaggeration' (representing outcomes or embellishing events as more significant than is actually suggested from the data). Indeed, as noted at various points during the findings chapters, telescoping-type inconsistencies between interviewee accounts or between documentary data and interview data were found and problematised (e.g. see commentary on data inconsistencies in Sections 6.1.2 and 6.1.3). Although triangulation between different data sources is a useful method for identifying these biases, patchy content overlap between data sources does not always allow for comparison. Further, it is particularly important to consider the degree to which attribution error may have skewed conclusions formed in Chapter 7, as to the degree of influence that leaders may have had upon particular events or successes.

The case study of a single organisation facilitates focused in-depth analysis of the subject of interest; however, the lack of empirical comparison with other sites may curtail the explanatory range of the findings. That is, comparison between cases can help to identify causal mechanisms that are more or less dependent upon a particular set of contextual conditions. This, in turn, may provide clues to theoretical generalisability. Conversely, the comparative lens may inadvertently narrow the view to a dyadic focus on similarities versus

differences, which can compromise the overarching objective: to offer an in-depth explanation for the outcome or phenomenon of interest. For this study, depth was achieved, potentially to the detriment of a better understanding of generalisability, requiring that other approaches to considering critical realist generalisability be taken (see forthcoming Section 9.2.3).

9.1.3 Researcher limitations

Research quality, particularly for qualitative research, is highly dependent on individual research skills and is influenced by the researcher's personal biases and idiosyncrasies. This highlights the importance of selecting a research paradigm and remaining consistent with this paradigm throughout the research project. Beliefs about the nature of reality (ontology) are deeply personal and subjective, and they have consequences for a set of cascading decisions throughout the research process (i.e. ontological position informs understandings of epistemology, which informs methodological approach, which informs research design and choices of method). If these choices remain implicit, they can colour or bias the research in ways that remain largely hidden (even to the researcher him or herself), whereas, an explicit commitment to a coherent position allows for a more critical and reflexive view of the consequences of these choices. The selection of critical realism as the overarching ontological-epistemological-axiological system of research therefore provides a guard against researcher bias and subjectivity, not by eliminating these two challenges but by providing an in-depth understanding of their nature. There are a number of difficulties associated with following the critical realist paradigm, however.

Prominent on the list of difficulties is the critical realist epistemological commitment to Charles Peirce's triadic 'logic of inquiry' (Bird 1959). This triad features and aims towards abduction (essentially, a creative form of guesswork/hypothesis-development based on data) but draws on both inductive (data-driven) and deductive (theory-driven) forms of logic in the process. In practice, the triadic 'cycle of inference' relies upon the skill and judgement of the researcher to select one logical form over another at particular crossroads within the research process. For example, as per Fletcher (Fletcher 2017), the decision was made to begin the research process with a survey of the entire span of existing theories and explanations for hospital performance, and to use these theories as deductive codes within the data analysis process. Where deductive codes were unable to sufficiently describe the data, inductive

codes were then generated. Although this example is simple and was easily captured within the research protocol for this study, as the data analysis and theory generation process continued and analysis became more granular, the required exchange between logical modes became more challenging and the researcher was confronted with a series of micro-decision points. This dilemma is described in detail within Memo #9 'Abductive cross-roads' within Appendix I.

The navigation of these abductive 'cross-roads' within the current study relied heavily upon individual subjective judgements of the researcher. At all times, these judgements sought to remain consistent with the overarching principles of critical realist research (as described within Chapter 4, and detailed by Wynn and Williams (2012), and further, many were problematised within reflexive memos (see Appendix I). Despite these safeguards, however, it is important to explicitly note that the empirical process was influenced by individual characteristics of the (single) researcher of this study. From a critical realist perspective, this is no great surprise or drawback as it is assumed that the researcher is an active and creative participant in the development of research findings (Bygstad, Munkvold & Volkoff 2016); however, an awareness and reflexivity around this level of constructivist subjectivity is required.

9.1.4 The degree to which the study is credible, confirmable and dependable

Trustworthy qualitative research is: credible; confirmable; and dependable (Williams & Hill 2012) (see also Section 4.4.6 in Chapter 4). Sections 9.1.1, 9.1.2 and 9.1.3 above, have described various weaknesses with both the design and execution of the study. These weaknesses span: i) the application of very minimal scope boundaries; ii) new method creation and 'testing' which necessitated method change; iii) challenges inherent within the case study design, and a reliance upon imperfect interview and documentary data sources; and iv) perspectives introduced by the researcher as a result of their idiosyncratic beliefs, and the ways in which these beliefs influence various decisions taken and interpretations made before and during the research process.

In assessing the overall credibility, confirmability and dependability of this study, it is worthwhile considering these weaknesses in light of the measures that were used to enhance research rigour. Table 18 (below) provides an updated account of these (as originally introduced in Section 4.4.6 of this thesis) alongside listed weaknesses.

Table 18 Appraisal of quality research design

Dimension of research rigour	Measures employed to enhance research rigour	Study limitations with implications for research rigour
Credibility	• Use of multiple sources of data including interview and documentary analysis (triangulation) • Interviewee diversity, including level of seniority within organisation • Establishment of a 'chain of evidence' • Use of respondent validation / member-checking interviews with key informants • Where possible, use of replication logic, and the logging of a detailed methodological record	• Documentary data unavailability or 'patchy' overlap for the purpose of triangulation • Interview sampling bias towards managerial staff or those with a 'big picture' view of the organisation • Self-reported interview data (e.g. selective memory, exaggeration, telescoping, attribution error etc.)
Confirmability	• Reflexivity (e.g. deep reflection and memo-writing) • Address rival explanations within data analysis	• Researcher idiosyncrasies • Abductive decision points and 'cross-roads' necessitating mid-method changes
Dependability	• Development and use (where possible) of a case study protocol for data collection • Use of a case study database for data collection and retrieval	• Development of new method and approach • Change to method protocol during analysis • Use of retroduction in the latter stages of analysis, which intrinsically resists methods protocol and codification

From this comparison it would appear as though there were aspects of the research process that enhanced, as well as aspects that undermined, research rigour. Some weaknesses may have been (or might be, in future) amenable to mitigation, for example, interview sampling or mid-analysis methods change. However, others were either unavoidable within the scope of qualitative research (e.g. unavailability of data, interviewee selective memory) or were more inextricably linked to the ontological and epistemological position taken for this study. For example, the commitment to abductive reasoning requires more flexibility in method than what is usually expected in a study protocol. The early decision to minimise delimitations

in order to assess the full span of knowledge related to hospital performance is rooted in a deep commitment to critical realist principles; however, this decision also has implications for the depth and quality of scholarly consideration with which this 'full span' of knowledge may be examined and discussed.

There is particular value in understanding the nature of these ontological and epistemological choices, and their implications for research rigour. First, it is useful to identify them in order to reflexively appraise rigour. Second, it is useful to see them in the broader context of ontological and epistemological compromise – to understand that *all* paradigms and positions upon the philosophy of science spectrum come with certain perils. For example, the logical positivist paradigm favours the narrowing of research scope and would have guarded against adopting a 'minimal delimitations' approach as taken within this study; however, this is also the same logic and paradigm that led to the splintering of research knowledge, and the altogether 'inconclusive' empirical results reported in Chapter 3. As suggested here, perhaps it is the plurality of imperfect approaches that may lead researchers to new and (more) conclusive insights about the nature of the world and its workings.

Section 9.1 has offered an appraisal of the various limitations and strengths of the current research. It is clear from this analysis that although important measures were used (largely, successfully) to enhance research rigour, the research presented here is best described as: somewhat credible, somewhat confirmable, and somewhat dependable. From a critical realist perspective, the imperfect nature of this research is no cause for alarm. Rather, it supports the notion that there is limited value in conducting research in isolation, as the greatest benefit to knowledge and practice is gained through consideration and collaborative exchange at the level of the broader research corpus. As will be described in detail within the next section of this chapter, the current study has used abductive reasoning to illuminate novel theoretical insights that would otherwise not have been possible using purely inductive or deductive logics of inquiry. These novel theoretical insights may then be tested from within and/or from without the scope of the critical realist paradigm.

9.2 IMPLICATIONS AND RECOMMENDATIONS FOR RESEARCH AND PRACTICE

9.2.1 Original contributions to the literature

Empirical and theoretical contributions

Comparisons between existing scholarly knowledge and the findings of this study (as detailed under Section 8.2) concluded that although the *components* of the hive model (and theory as to how this hive model evolved to be) are not necessarily original in and of themselves, the way in which the model and theory charts the processual interconnections between these components offers novel insights to the study of hospital performance and improvement. Mapping the dynamic and interdependent interplay between the 'hive' cultural values, attributes and behavioural routines describe the fluid, interconnected movements within an entire, intact, self-adjusting social system. And, according to the literature reviews completed here (Chapters 2 and 3), both the attempt and execution of this synthesis is original.

The identification of this social system as an example of heterarchy (as opposed to hierarchy), provides the basis for new theoretical understandings of how power might fluidly exchange within a hospital environment towards sustained and ongoing improvement. Further, the findings of this study chart the process by which the case site came to be this way, as seen over several decades. This form of long-range historical, contextual, processual study is much less common within the literature, despite the many years since Pettigrew's famous criticisms of the organisational and strategic change literature as 'a-historical, a-contextual, and a-processual' (Pettigrew 1985, p. 23). Naturally, from new approaches come new insights. Unlike the more micro-level insights offered by the change management or implementation science literatures (Peters et al. 2013), or the limited timeframes of interest to the transformational change literature (Lukas et al. 2007), the long-term evolution of whole-of-organisation capacity for performance improvement that is offered here, is far less studied. Again, the *components* of current findings are not necessarily new (e.g. the centrality of trust between clinical and managerial staff as a key rate-limiting factor for improvement (Calnan & Rowe 2006; Rundall et al. 2004; Succi et al. 1998)); however, theorised understandings of the particular sequence, rate of change, and the mapped inter-dependencies between theorised components, offer novel insights to scholars of hospital and organisational change.

Methodological contributions

Above all else, method must serve the research question posed, and it must do so in a way that enacts the chosen ontological and epistemological paradigm. Research studies achieve this with varying degrees of success. For instance, many critical realist studies claim to adhere to the ontological and epistemological principles of the paradigm, but there is little evidence (or even, contrary evidence) that method logically extends and adheres to these principles (for instance, the use of grounded theory prior to methodological contributions made by Hoddy (2019)). The research questions chosen for this study reflect typical critical realist aims (Easton 2010; Wynn & Williams 2012): they have sought 'how' and 'why' explanations for the historical performance trajectory of Alfred Health. As noted above, in order to remain true to this question very few delimitations were applied and abductive principles of inference were favoured, which in turn, had consequences for method. And, in light of the poorly developed methods available for critical realism (Ackroyd & Karlsson 2014) this required methodological innovation.

First, in order to adhere to the inductive-deductive-abductive cycle of inference and the critical realist principle of retroduction (Wynn & Williams 2012), it was important that the literature review spanned the spectrum of available theory and evidence of relevance to the (quite broad) research topic. This was to support:

> *…a creative process for the researcher in which multiple explanations are proposed which describe a causal mechanism, set within a social structure, that must exist in order to produce the observed events. In essence, the researcher conducts what Weick (1989) described as* thought trials *to identify and describe the elements of the causal mechanism and the contextual influences responsible for its activation.* (Wynn & Williams 2012, p. 800)

> *If there are existing mechanisms in the theoretical knowledge of a field, they are adapted to fit the specifics of the given case. However, if no existing mechanisms are adequate to explain the phenomena being studied within a specific context, a new mechanism (or set of mechanisms) is proposed… (Wynn & Williams 2012, p. 800)*

This was an unusual undertaking, as it goes against much of the academic practice wisdom that typically guides graduate research students to continually narrow their scope of inquiry. To place so few delimitations posed certain risks (as discussed above) but also facilitated a far broader view of the research topic, allowing for a more systems-level examination of the field which was found to be sorely lacking within the existing literature (Braithwaite et al. 2017a;

Mick & Shay 2014a). As argued above, this is largely due to the predominance of the logical positivist hypothetico-deductive method in this field of research.

Chapter 2 surveyed the broad theoretical landscape and Chapter 3 undertook a realist synthesis review of reviews in order to evaluate the empirical evidence for each of the theories offered. The RAMESES realist synthesis was conducted with as close adherence to the PRISMA systematic review criteria (Wong et al. 2013) as possible. It is understood that this combination of the RAMESES realist review protocol with the PRISMA protocol was the first of its kind, marking a novel methodological contribution to the literature. The combined approach greatly strengthened the review process and outcome, by striking a functional balance between systematised ways of working (e.g. systematic database searching), and a more iterative response to discoveries (e.g. snowball searching) throughout the review process. The second part of the literature review (in which the discussion and conclusion sections of the articles were subject to a thematic analysis) also offered a novel contribution to the literature. The decision to conduct this thematic analysis was in response to the lack of clear empirical support for the entire span of existing theories and explanations for hospital performance. As such, the thematic analysis sifted through authors' preliminary explanations and conclusions as to why evidence was inconclusive. This second analysis was particularly useful in framing the budding scholarly discussion as to how various factors coalesce and interact to create performance results (see also Figure 19 – Revised Conceptual Framework). This, in turn, helped shape an additional set of deductive codes for use in the data analysis phase of the study.

Second, novel methodological insights were gained as a result of the synthesis of Braun and Clarke's (2006) thematic analysis method with the principles of critical realism outlined by Wynn and Williams (2012) and the abductive innovation presented by Fletcher (2017) (see Section 4.4.1). The critical realist protocol for case study research that was developed from this synthesis (see Appendix D) tested Braun and Clarke's (2006, p. 81) claim that their method and critical realism were compatible. Although this was the case for the first four steps of the method (to the completion of the first phase of coding), it became clear that a fundamental conflict in paradigms prevented the final four steps being completed according to the original study design (from theming to reporting on findings). The fundamental disjuncture between paradigms rested on whether themes derived from the analysis were to be considered distinct and mutually exclusive (as necessitated by Braun and

Clarke's (2006) method), or whether themes may overlap or share codes or theoretical components (as is the necessity when attempting to understand the interconnections between factors).

This partial support for Braun and Clarke's (2006, p. 81) claim provides some new insights for critical realist methodology. First, the use of the protocol up to step five, provides a somewhat more systematised basis for critical realist data analysis than what is currently available from the literature (excluding the grounded theory method, which is an entirely different approach). The shift beyond data coding to theming and interpretation required abductive reasoning and retroduction, which resists methodological standardisation and codification, as it requires a degree of creativity and the capacity to make intuitive leaps for theory creation (Bygstad, Munkvold & Volkoff 2016; Wynn & Williams 2012). What was observed during this phase, was the importance of memo-writing and the drawing of pen-and-paper diagrams as a support to the process of decision-making at various abductive cross-roads (as described under Section 4.4.5). Further, theme generation largely emerged from the iterative grouping and regrouping of codes, including an innovative 'coding for coding density' stage to the process. Unlike Braun and Clarke's method (2006), it was important that it be possible to allocate codes to multiple groups – reflecting the densely interactive nature of organisational elements and processes. A final methodological innovation was undertaken after the initial theming had been conducted. The data under particular themes were revisited and targeted for coding a second time, in order to target information specifically on the 'how' and 'why' evolution of thematic constructs, such as 'hive energy', 'hive consciousness' and 'hive belonging'. This additional step and process was used as the basis for reported findings in Chapters 6 and 7.

The final methodological innovation worth noting relates to the generalisability of findings from this study and the decision-support tool that was developed in order to assist policy-makers and practitioners to assess generalisability to their respective contextual settings. It remains to be tested and is summarised in Section 9.2.3.1 of this Chapter, and discussed in detail within Appendix L.

9.2.2 Implications and recommendations for future research

The purpose of abductive reasoning is to generate hypotheses (Bird 1959). In other words, the creativity inherent within the abductive process is useful for synthesising existing

knowledge with empirical observation towards the development of novel theoretical insights. These novel insights are then open to testing. From the critical realist perspective it is not recommended that 'testing' occur from the exclusive position of the hypothetico-deductive method. This is because open systems are contextually dependent and variables cannot be fully 'controlled for' as there are too many, and they are important components in the overall dynamic of the system. Therefore, it is recommended that future research that is designed to build upon the current findings: i) to conduct a series of in-depth case studies of other high-performing hospital networks in Australia (or beyond) in order to identify the causal mechanisms for hospital performance improvement, and to examine possible demi-regularities and tendencies at the macro-level (across various case sites); and ii) following this in-depth comparative case research, test findings using a larger sample of hospitals by using the refined theory (or theories, where equifinality may have been identified) as the basis for a fuzzy-set qualitive comparative analysis of hospital performance and improvement.

The first of these recommendations suggests examining other hospital networks and case sites in order to compare the types of performance improvement mechanisms that may be evident within peer-organisations. Ideally these in-depth, processual, case studies would be drawn from the pool of hospitals in Australia in order to aid comparison among sites with similar macro-level pressures and changes. It is suggested that a similar methodological approach be taken to the current study – an abductive critical realist study, drawing on thematic analysis in keeping with the principles of critical realism as documented by Wynn and Williams (2012). Although refinements may be necessary (and the retroductive process cannot be codified in method), the method documented herein may be used as a basis for these further studies. In order to work with the hive model whilst not slipping into deductive reasoning, it is suggested that the components of the hive model (as documented in Table 15) be included as additional deductive codes for data analysis, alongside the existing list of deductive codes used within the current study. The principle of equifinality (the principle that in open systems a particular outcome, for instance performance improvement, may be reached by a multitude of means or mechanisms) is important here. As such, it is essential that inductive reasoning also be employed within the analytic process, to ensure that novel mechanisms may be revealed alongside the possibility of finding support for known theories.

Following a series of comparative case studies, it may be useful to codify the refined theory (or theories) derived from this research to develop a research instrument suitable for

testing as part of a fuzzy-set qualitative comparative analysis study. This would allow for a far larger scale of case comparison (potentially Australia-wide or beyond), whilst upholding the principles and possibilities of equifinality and theoretical pluralism that are central to the critical realist frame (Wynn & Williams 2012).

From a methodological perspective, it is recommended that future researchers wishing to undertake critical realist case study research consider abductive thematic analysis, as described within this study (see Section 4.4), as an alternative to the more commonly used critical realist grounded theory approach. Key guidance to future researchers would be to approach the thematic analysis with a systematised approach resembling the earlier stages of Braun and Clarke's method (as mapped to critical realist principles); however, beyond data coding, drawing on the more fluid, iterative and creative approach to theme creation as captured by the retroductive process. In particular, the 'coding for coding density' analysis, the return to a targeted 'how' and 'why' coding process after initial thematic categories had been developed, and the retroductive 'theming' tactics described in Section 4.4.5.6, represent methodological innovations that may be of use to future researchers.

9.2.3 Implications and recommendations for policy and practice

Whereas positivist researchers seek to generalise from research findings in order to predict outcomes across cases, the critical realist notion of generalisability negates prediction, in favour of explanation (Bhaskar 1979, p. 27). According to critical realists, prediction is futile when applied to the messy world of open systems, in which the boundary between case and context is fluid, continually changing, and irrefutably unique to each case and the distinct periods within the case's history. Instead, the aim of critical realist research is to understand how the findings were arrived at, in context, and then subsequently to explore how this context-specific explanation may offer insights (rather than conclusions) to similar phenomena operating in contexts with some similarities and some differences. Critical realist generalisability 'requires a heavy focus on context' (Dobson, Myles & Jackson 2007).

9.2.3.1 The theory borrowing framework and decision support tool

The dilemma remains as to *how* this may be achieved. Unfortunately, critical realist scholarship appears to provide little practical guidance as to how a theory may be contextualised and recontextualised in order to support the practice of theoretical generalisability (Dobson, Myles & Jackson 2007; Lee & Baskerville 2003). Recognising this

(and also acknowledging the vital importance of theoretical generalisability to the capacity for critical realist research to fulfil core principles of pragmatism and emancipation (Fleetwood 2014)), as an adjunct to the current research project a brief review of the theory borrowing literature from the field of management was undertaken. From this review, a synthesis of existing knowledge on the topic was used to construct a decision-support tool to help practitioners and policy-makers to modify theories for generalisation and use within different contexts. A detailed account of this review, the process used to construct the decision support tool, and an example of its use, is included in Appendix L.

Here, however, the tool has been put to use, offering tentative and preliminary insights as to how the findings of this research – the hive model – might be used and modified for application across other contexts. This includes both areas of caution as well as areas of potential applicability; and it is important to stress that the insights presented herein are not intended as overarching statements of universal generalisability. Rather, they offer a more detailed view as to the sorts of considerations necessary in order for a policy-maker or practitioner to reflect on the contextual compatibility between their own unique organisational circumstances and the theoretical 'hive' model presented here. Importantly, this does not override the need for further empirical study to examine the hive model in more detail (as per recommendations under Section 9.2.2 of this chapter).

The decision-support tool was designed as a two-part process. First, policy-makers and practitioners are prompted to consider whether the context surrounding the theory-to-be-borrowed and their own local context are sufficiently similar to warrant theory borrowing. Where there is an appropriate level of contextual correspondence, the second part of the process offers several tactics for the modification of the theory in order for it to be recontextualised for a new purpose and set of environmental and organisational circumstances. In the 'worked example' presented here, general hypothetical contexts to which the hive model may be localised are provided. This helps to demonstrate how the theory may be recontextualised; however, policy-makers and practitioners would benefit from moving through this process in far more detail, should they wish to explore the application of the model.

Figure 20 illustrates the synthesised framework for theory borrowing, and Table 19 puts the decision support to use, providing a (partial) 'worked example' for the hive model.

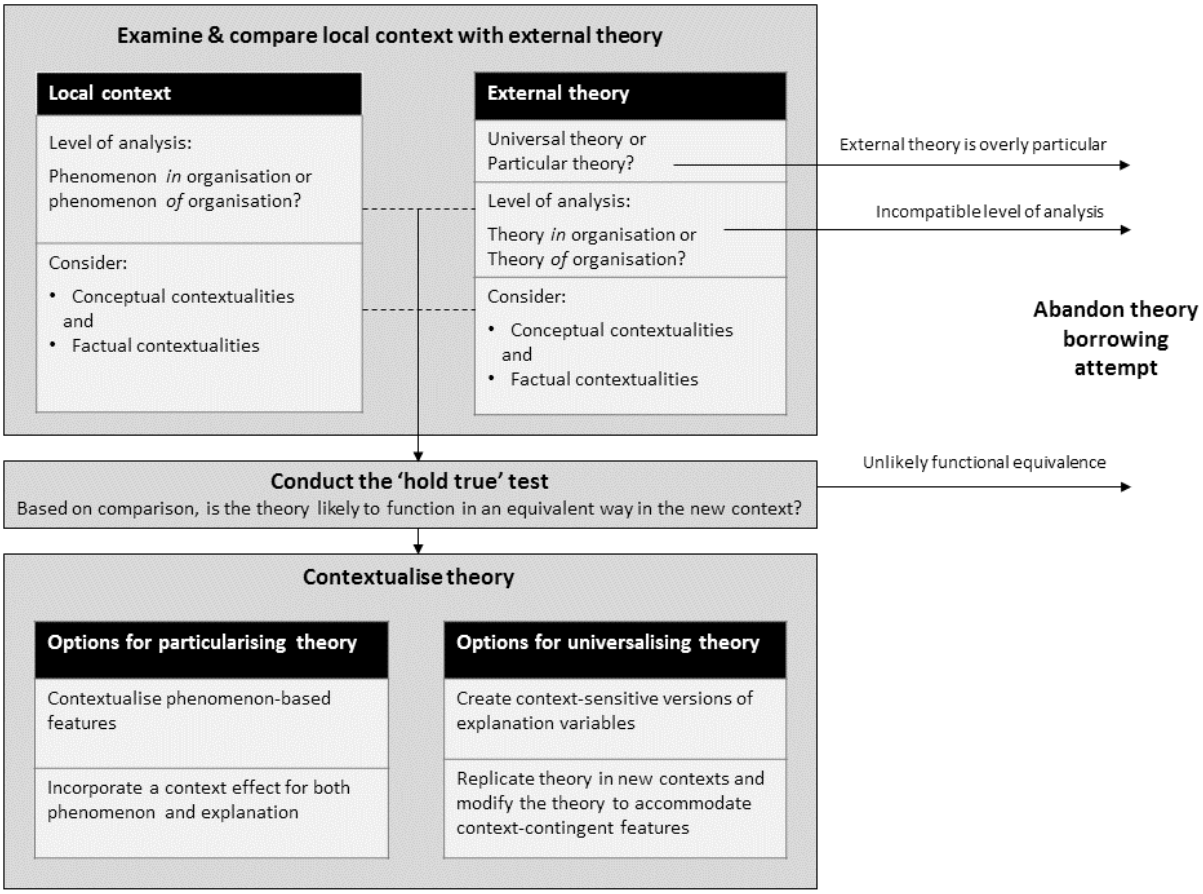


Figure 20 A model for context-sensitive theory borrowing

Table 19 A partial 'worked example' of the theory borrowing decision-support tool

Part 1. Examine and compare the external theory with the local context				
Prompting Question		*Guidance*	*External Theory: The Hive Model*	*Local Context: XXX*
1.1	Is the external theory best described as universal or particular?	Consider abandoning the theory borrowing attempt for external theories that are particular.	The hive model has both particular and universal theoretical aspects. The hive cultural attributes, hive cycles and the evolutionary process that brought these characteristics into being, are highly particular to Alfred Health. However, each of these theorised components correspond to universal classes of phenomena. For instance, hive purpose corresponds to human experiences of meaning and motivation; hive energy corresponds to the active use of motivation; and hive consciousness and belonging correspond with the cognitive and felt awareness of group membership. Whereas the class of phenomena is fundamental to human experience and group dynamics, the characteristics of that class, are more particular to Alfred Health. From another perspective, however, the theorised (metaphorical) alignment between Alfred Health and aspects of honeybee social structure and organisation might indicate the potential for more universal applicability.	
1.2	Was the external theory originally developed for a level of analysis that corresponds with the local context?	Consider abandoning the theory borrowing attempt where levels of analysis do not correspond between the external theory and the local context.	The hive model relates specifically to the whole-of-organisation level of analysis. There may be opportunities to vary the contextual application vertically (at different levels of analysis), for instance: a partnership between two organisations within a health system.	*To use the decision-support tool as intended, policy-makers/ practitioners would insert reflections here*
1.3	What are the key differences between the external theory and local context, regarding conceptual contextualities?	Consider the school of thought that the external theory may belong to, and identify all possible underlying assumptions that influence the use or explanatory power of that theory. Assumptions may be ontological, epistemological, and methodological. Where there are stark differences in these underlying assumptions, consider abandoning the theory borrowing attempt.	The ontological assumptions underlying a heterarchical rather than hierarchical worldview represent a characteristic that is relatively particular to Alfred Health. However, once again, this worldview aligns with characteristics of eusociality found within other (particular) social structures, such as honeybees, potentially indicating the capacity for more universal applicability.	

1.4	What are the key differences between the external theory and local context, regarding factual contextualities?	Consider and identify the similarities and differences between the originating context of the external theory and the local context, including: place, time, actors, institution, structure, political and economic factors, or other hidden or taken-for-granted aspects of context (e.g. culture). Where there are stark differences in these underlying assumptions, consider abandoning the theory borrowing attempt.	Alfred Health - Place: Located in the inner south east of Melbourne, Australia, with a population of higher socio-economic status (SES) and lower ethnic and cultural diversity. - Time: empirical study relates to the organisation's history from the late 1980s to late 2010s. - Actors: individual characteristics of leaders and key decision-makers – particularly, the tendency towards leaders' heterarchical worldview. - Institutions: Alfred Health is a large, tertiary teaching hospital. The institution encompasses several sub-institutions, including: three distinct geographical campuses; a large number of departments and units that function with variable levels of autonomy; normalised professional groups (such as specific medical specialities, nurses, allied health practitioners, administrators). - Structure: organisational structural shifts, starting with a more centralised structure in the early to mid-1990s, a more devolved structure from the mid-1990s, and a more integrated central structure from the late 2000s. - Political and economic factors: changes in government, rationalisation reforms of the 1980s and 1990s; organisational threat of closure during the mid-1990s; specific quality improvement reform measures such as NEAT and NEST targets of the 2010s. - Latent factors: antecedent cultural factors, such as the (likely) pre-existence of hive energy prior to the empirical period of study.	
1.5	Based on an overall comparison between the external theory and local context, is the theory likely to operate in an equivalent way in the new context?	Consider abandoning the theory borrowing attempt where an overall analysis would indicate that the external theory is unlikely to operate in an equivalent way.	The hive model is highly particular to Alfred Health including a set of context-specific cultural attributes and routines, discrete to particular period/s of time. Due to this, it is unlikely that direct attempts to replicate or spread the model from one organisation to another would be successful. However, the model does provide an aspirational social structure and culture for organisational improvement, which appears to share similarities with other eusocial structures (e.g. honeybees) potentially indicating a somewhat more universal form for group coordination towards a defined goal. Theorised understandings of the evolution of the Alfred Health hive attributes and routines indicate a set of potentially more generalisable principles useful to other organisations. For instance: - Leaders bringing to the organisation a heterarchical worldview and demonstrating/modelling this worldview in action;	

			- Deliberate structural changes in order to influence or correct the balance of cultural attributes for the organisation; - Trust as a rate-limiting and/or facilitating factor for the development of hive attributes and routines; - The centrality of hive purpose to the function of all other components of the hive model; - Hive energy and the information-action cycle to be developed first, followed by hive consciousness and the discussion-consensus cycle, and last, hive belonging and the consistency-flexibility cycle.	
Part 2. Contextualising theory				
Strategy		*Guidance*	*Modifications to the External Theory*	
Particularising theory				
2.1	Contextualise phenomenon-based features	Drawing on factual and conceptual contextualities that are important to the local context and phenomenon of interest (1.3 & 1.4), modify the theory to account for these features.	*Methods for particularising theory must be conducted with knowledge of a local context to which a modified theory may be applied. A brief example of strategy 2.2 is included in Appendix L.*	
2.2	Incorporate context effect for both phenomenon and explanation	Consider and observe the ways in which features of the local context and the application of a particular external theory may interact to create a novel effect. Describe the relationship and interaction between the two, and add this to the external theory as an additional and distinct moderating factor.		
Generalising theory				
2.3	Create context-sensitive versions of explanation variables	Deconstruct the core constructs that make up the external theory and modify these to create multiple context-sensitive versions of the theory. Develop a comparative typology to assist with the identification of underlying context-specific mechanisms. Use this	Type 1. Hypothetical hospital with low levels of intra-organisational trust. For example, application of the hive model may need to begin with: - Recruit leader with a heterarchical worldview and way of working, and a deep and demonstrable personal commitment to patient care.	Type 2. Hypothetical hospital with moderate levels of intra-organisational trust. For example, application of the hive model may begin with: - Recruit leader with a heterarchical worldview and way of working, and a deep and demonstrable personal commitment to patient care.

		analysis to create a more universal theory that is capable of accommodating numerous contexts.	- Quickly gauge historical sources for low-levels of trust (e.g. perceived injustices) and open a dialogue with various levels of the organisation (at low levels of formality) in order to develop personal rapport between administrators and clinicians / departments. Support (prioritised) bottom-up suggestions for change and improvements that align with a common purpose (hive purpose) for patient care. - Source or select a demonstration improvement project that is unlikely to cause intra-organisational discord or challenge trust, in order to commence practicing the information-action cycle. Build momentum and (human resource) capability for the information-action cycle from here, and in doing so, nurture trust around the process and between parts of the organisation. - Simultaneously, begin discussions within the organisation around a vision that engages with a common purpose (hive-purpose) around patient care and demonstrate a deep personal commitment to patient care within all discussions, decisions and actions. - And also, begin taking steps to engage opportunistically with the external environment and to insulate the organisation from external threats, or using threats as the impetus for positive change through a process of problem ownership and solution localisation.	- Assess existing levels of hive purpose and commitment to patient care, as well as other hive cultural attributes and cycles. - Assess current organisational structure and the current influence that structure may have on cultural attributes, and devise structural corrections to support development of hive attributes. - Set out both a structural and cultural agenda for the organisation and distribute and discuss this widely, seeking feedback, input and participation. In particular, articulate the deep commitment to patient care and other hive attributes (see also Appendix K for a copy of Dr Michael Walsh's opening speech to Alfred Health which demonstrates this bigger picture agenda-setting). - As part of an ongoing program of information-action cycles for improvement, begin approaching top-down decisions according to the discussion-consensus cycle, that is, by providing or appointing a trained project facilitator, selecting the parameters for a particular problem and solution (e.g. timescale, budget etc.), and selecting the relevant members (from all levels of the organisation) who are invited to participate the decision-making process, and accepting solutions that are generated as part of this consensus process.
			Example of ways in which the theory may be generalised, in response to the typology of hypothesised cases:	

			The theory of hive model evolution (e.g. theoretical content canvassed in Chapters 6 and 7) might be expanded and generalised to encompass varying levels of baseline intra-organisational trust, including instances in which further preliminary work may be required prior to the direct commencement of hive cycles and routines. For example, there may be a necessity to examine and acknowledge existing discord and historical sources of mistrust prior to any attempts to develop renewed trust.
2.4	Replicate theory in new contexts and modify the theory to accommodate context-contingent features	Replicate the theory across multiple empirical contexts, and/or draw on a review of other scholars' findings. Undertake an analysis of the conceptual and factual differences (1.3 & 1.4) and any differences in the effect of the theory, and use this knowledge to modify the theory to accommodate (numerous) context-contingent features.	*Empirical methods for generalising theory require the development or compilation of an evidence base.*

As described within Table 19, the hive attributes and cycles (as canvassed in Chapter 5) are highly particular to the cultural and temporal context of Alfred Health. If a policy-maker or practitioner were to attempt to directly replicate the functioning of these hive characteristics within another context, the transfer would likely have a high chance of failure. This may be due to the interaction and incompatibility between the existing cultural attributes of the organisation, and those required for the functioning of the hive model: hive purpose, energy, consciousness and belonging. As suggested by the analysis in Chapter 7, it seems, organisational cultural attributes cannot be controlled, constructed or contrived 'from above', rather leaders may be able to influence them indirectly, and over a relatively long period of time.

As an aspirational model for hospital improvement however, the hive model does offer some potential for theoretical generalisability to other contexts. The theorised alignment between Alfred Health and important aspects of the social structure found within honeybee colonies might indicate that there are a number of more universal dimensions to the theory. Drawing on the complexity lens, the particular version of 'hive' functioning observed at Alfred Health might be said to represent a metaphorical fractal – offering more universal insights to (one possible) structure and set of mechanisms that might lead groups to collaborate and coordinate their efforts and behaviour. Pairing the hive model itself (i.e. the content covered in Chapter 5) with knowledge of *how* and *why* the hive model evolved as it did (Chapters 6 and 7), may provide health system policy-makers and decision-makers with important clues as to how they may influence their own local context to function in more eusocial 'hive-like' ways. For instance, the example used within Table 19 makes various conjectures and projections as to the process for developing hive-like qualities in an organisation with a poor level of existing intra-organisational trust.

Beyond trust however, other contextual variants might include environmental opportunities, pressures or other factors of turbulence. For instance, an important event within the performance improvement history of Alfred Health was the organisational threat of closure of the mid-1990s. It is important to acknowledge that a hospital site wishing to draw on the findings of this research is unlikely to be confronted with an equivalent set of circumstances comparable to Alfred Health. However, it may be useful to consider the level and type of environmental turbulence that they may be surrounded with, in order to either take advantage of any existing turbulent conditions (derived from the experience of Alfred

Health), or examine ways to modify the theory if the circumstances and opportunities do not exist. Alongside a multitude of other possible contextual variants, the consideration of environmental turbulence may be used as another 'explanation variable' (as per strategy 2.3 in Table 19) for the development of context-sensitive versions for theory generalisation. Or, with further information regarding particulars of the local context (to which the hive model may be localised and applied) strategies for particularising the theory may be used, as per 2.1 and 2.2 of the Table. Or, with access to further data and evidence, the more common, empirical method of theory generalisation may be used, as per strategy 2.4 of the Table.

9.2.3.2 Key recommendations for policy-makers and practitioners

The principal recommendation to health system policymakers and hospital decision-makers is to resist any attempt to directly replicate or transfer the hive model (or, perhaps, any theory derived from elsewhere) for application within their settings. Rather, it is suggested that suitable models and theories pass through a comprehensive process of localisation and recontextualisation. This would include a close examination of both the context and particulars of the theory to be borrowed, and the local context to which the theory may be applied.

Drawing on preliminary findings from the theory borrowing decision support tool presented in Table 19, the following recommendations are made: i) leaders ought to approach the organisation with a heterarchical worldview and way of working as opposed to a more traditional hierarchical way of working; ii) the full functioning of the hive model appears to require that the hive purpose is at the centre of all decisions and actions, big and small, formal and informal; iii) the development of the hive attributes and cycles ought to unfold in a path-dependent set of evolutionary steps, with hive energy and the information-action cycle established first, hive consciousness and the discussion-consensus cycle established second, and hive belonging and the consistency-flexibility cycle established last; and iv) trust appears to be a key rate-facilitating (or limiting) factor for the evolution of hive cultural attributes and cycles.

9.3 CONCLUDING REFLECTIONS

This study was ignited by a passion for public benefit. It is my great fortune that the metaphorical fire has burned steadily to the very end of this scholarly process, and I imagine, will be sustained for many years. Much like person-centred care must place the person to receive medical care at the centre of all decisions, this study placed the hypothetical 'hospital decision-maker' at the centre of all research considerations. For example, recognising that scholarly knowledge (of relevance to hospital executives and policy-makers) is predominantly splintered according to disciplinary and theoretical factions, this study has attempted to reintegrate knowledge in a way that may be of greater aid to those who are best positioned to influence the improvement of our health care systems.

The degree to which the study achieved such lofty goals is worth considering. The choice had immediate implications for the two literature reviews undertaken at the outset of the study – particularly relating to the (very few) scope boundaries placed on the review, and the insistent aim to uncover the interconnections within and between fractured parts of the overall knowledge-base. Undertaking the reviews from this perspective revealed various deficiencies (not otherwise problematised by scholars) regarding the scope and utility of knowledge available for hospital-decision makers. This, in turn, had implications for the sorts of research questions that were selected, and for the critical realist study design that was adopted and developed. Research findings broadly supported but also extended beyond the existing literature, thus generating new theoretical insights as to the process and context of performance improvement at the case site. Further, taking the perspective of the hospital decision-maker, these findings were then subject to a novel methodological process (specifically developed for this study), which sought to assist hospital executives and policy-makers in understanding how the theory presented here (or any desirable theory) might be 'borrowed' or 'localised' for their own settings.

What seems apparent is that the choice to place the hospital decision-maker at the forefront of research considerations led to a series of methodological innovations and research findings that were considerably different from previous scholarship. This, however, is not to say that that these findings correspond with or result in direct public benefit. Beyond contributing to the somewhat jarring question: 'how do we design research with the primary focus upon the needs of the end-user of knowledge, rather than the researcher?', the findings

themselves are best described as exploratory and preliminary. Abductive research, by nature, relies upon creative and conceptual leaps, and is best employed to stimulate new perspectives, and develop theory and hypotheses for further examination and investigation. In other words, the contribution to public benefit provided by this study represents a modest first step in what could be characterised as a far greater undertaking. There remains much to learn and test before patients will reap the rewards from our collective scholarly efforts.

APPENDIX A – GLOSSARY OF KEY TERMS

Note: definitions of key terms quoted from other authors and included (verbatim) below, are formally referenced within the body of the thesis.

Table A-1: Glossary of terms

Abduction	'Abduction' refers to a type of inferential reasoning that uses both inductive and deductive logics, in combination or close exchange, to form an explanatory hypothesis for subsequent inductive or deductive testing. Abduction requires a type of reasoning that moves from the observed effect, to postulate on the possible cause/s of that effect.
Abstraction (of theory)	'Abstraction' refers to the level of proximity with which a theory relates to direct empirical observations.
Agency (including 'agent')	'Agency' refers to a human 'agent' (or 'agents') acting with intentional causality.
Analysis	'Analysis' refers to a form of logic that requires the breaking down of a whole into separate component parts.
Axiology	Alongside philosophy of science concepts, 'ontology' and 'epistemology', 'axiology' refers to the philosophical study of value and value judgements.
Care	'Care', in the context of the hospital, refers to the efforts of trained professionals to maintain or restore physical, mental or emotional well-being to a person with medical needs.
Causal mechanism	'Causal mechanisms', also known by critical realists as 'generative mechanisms' refer to the combinations of causal powers and processes that might bring about a particular action or event. Causal mechanisms are not singular, nor are the exclusively attributable to human agents, rather they may manifest as a result of particular social structures, physical objects, or technological artefacts etc.
Complexity	In the complexity science/s, the term 'complexity' describes a type of system that functions with the following attributes: multiple parts of a system with multiple relations between those parts; non-linearity and unpredictability of system development and evolution, including the capacity for small changes to bring about large effects (or vice versa); contextually and historically-related transformations which involve the emergence of new system properties.

Conditions (including 'contextual conditions')	A 'condition' refers to a preceding or coinciding circumstance or set of circumstances that are perceived as contributing to the manifestation of a particular phenomenon.
Critical Realism	'Critical realism' is a post-positivist solution to the philosophy of science first developed by Roy Bhaskar (1978). The critical realist paradigm is often characterised as the middle-ground between positivism and interpretivism, as it draws on assumptions from both perspectives. The critical realist position is characterised by a commitment to realist ontology (an assumption that real world objects exist as separate entities from the human capacity to know or measure those entities), as shared with the positivist paradigm. Further, critical realism adopts a subjectivist epistemology, (an assumption that it is not possible for researches or participants of research to separate themselves from what they believe to know), as shared with the interpretivist paradigm.
Deduction	'Deduction' refers to a form of logical inference in which a conclusion about particulars is drawn from general or universal premises.
Emancipation	In the context of critical realism 'emancipation' refers to an axiological assumption that research ought to function as a means to liberate society from constraining social structures and mechanisms.
Emergence	In the context of critical realism 'emergence' refers to the notion that structures possess novel properties, characteristics and tendencies distinct to themselves, that cannot be reduced to or explained solely in reference to their component entities.
Empirical corroboration	'Empirical corroboration' refers to a researcher's efforts to draw on new or multiple sources of evidence in order to support the accuracy of an account, statement or idea.
Epistemology	'Epistemology' refers to the philosophical study of knowledge, specifically concerned with the nature, origins and limits of human knowledge.
Explanation	The term 'explanation' encompasses all theories, models, frameworks or hypotheses that scholars might suggest accounts for a particular phenomenon or observed effect.

Explication (including 'explication of events')	'Explication' refers to an explanation or interpretation of a phenomenon. In critical realist usage, 'explication of events' occurs where a number of potentially important milestone events (including actions and outcomes) were detailed and abstracted in chronological form.
Factors	A 'factor' refers to an element or constituent of something which contributes to or is able to influence a particular process, system or outcome.
Framework	A 'framework' provides an analytic, categorical structure in which to describe phenomena of interest to scholarship and research.
Hospital	A 'hospital' is a type of organisation established for the care of the sick or wounded, or those who require medical treatment.
Hospital performance (including 'performance improvement')	Hospital performance encompasses four dimensions: i) safety and quality (effectiveness); ii) patient experience (effectiveness); iii) access (equity and effectiveness); and iv) efficiency and financial performance. Performance improvement is regarded as an 'upward shift' in any of the performance indicators outlined above.
Independent reality	'Independent reality' describes the critical realist ontological notion that the world exists 'out there', independent of our ability to perceive or gather knowledge of the world.
Inductive	'Induction' refers to a form of logical inference in which a generalised conclusion is developed from a set of particular observed instances.
Inference	Scientific 'inference' refers to the process whereby a scholar may draw a conclusion, which, although not logically derivable from a set of assumed premises or from direct empirical observation, possesses some degree of likelihood and probability in relation to those premises or observations. Inference may rely upon intellectual, practio-technical, perceptual or creative skills and logic.
Interpretivism	'Interpretivism' describes a diverse set of approaches to social science that share particular set of ontological and epistemological assumptions, specifically: a relativist ontology (an assumption that reality is constructed intersubjectively through the experiences and meanings that various agents may bring to a social setting); and a subjectivist epistemology (an assumption that it is not possible for

	researches or participants of research to separate themselves from what they believe to know).
Logical positivism	See 'positivism'.
Mediated knowledge	'Mediated knowledge' draws on the critical realist ontological concept of intransitive and transitive realities to propose that knowledge of the intransitive ('the real') which is formed by us in the transitive dimension (the experienced), is always mediated by the social structures that surround us. Thus, knowledge is not created ex nihilo (out of nothing) but is influenced by our social interactions and beliefs, alongside our sensory, conceptual and value-laden interpretations of reality.
Method	'Method' refers to the tools or tactics selected to empirically address a chosen research question.
Methodology	'Methodology' refers to an overarching research strategy, often drawn from a coherent set of ontological-epistemological assumptions, with which a research study may be undertaken.
Model	A 'model' offers a visually descriptive simplification and representation of a phenomenon or some aspect of phenomena of interest to scholarship and research.
Ontology	'Ontology' refers to the philosophical study of 'being', 'reality' or what is real.
Open system	In contrast with 'closed systems' which describe sets of controlled conditions that are fabricated by natural scientists for use within laboratory settings; in open systems, reality is constantly subject to contextual conditions, and thus, outside of direct control.
Organisation	An 'organisation' is a social entity, that: is goal-directed, within a context of multiple and possibly competing objectives and motivations operating at various social levels; encompasses a deliberate system of activity, as well as less-deliberate tendencies or actions; and, operates within a perceived social boundary.
Positivism	'Positivism' describes a diverse set of approaches to science that share particular set of ontological and epistemological assumptions, specifically: a realist ontology (an assumption that real world objects exist as separate entities from the human capacity to know or measure those entities); and a

	representational epistemology (an assumption that it is possible to know real world objects through our capacity to accurately describe and explain this objective reality, through use of symbols and language).
Qualitative research	'Qualitative research' refers to a form of social scientific inquiry that seeks to understand the way people make sense of their experiences, typically by gathering empirical evidence through observation or interviewing methods.
Quantitative research	'Quantitative research' refers to a form of scientific investigation often associated with the natural sciences, in which explanations for various observed phenomena are formed by collective numerical data and analysing that data via statistical methods.
Reflexivity	The term 'reflexivity' describes a practice in qualitative research studies where researchers engage in self-aware and self-reflective meta-analysis by examining how the outcomes of research may be influenced by assumptions or methodological choices made by the researcher throughout the process of study.
Retroduction	'Retroduction' refers to a process of inference which involves a researcher 'working backwards' to examine and explain an observed phenomenon of interest, by forming novel synthetic links and interconnections between existing and new theoretical evidence and insights.
Stratified ontology	The critical realist notion of 'stratified ontology' provides structure to the concept of independent reality, assigning three nested levels to the real world: the 'real', the 'actual' and the 'empirical'. The 'real' encompasses all, including the entities and structures of reality, and the causal powers inherent within them as they exist independently. The 'actual' comprise the events that occur when these entities and structures are enacted by causal powers. Actual events may or may not be observed or perceived by humans. The 'empirical' consists of those events that are experienced (or, are able to be experienced) and observed by human perception or measurement. The 'empirical' resides as a subset of reality within the actual, which, in turn, resides as a subset within the real.
Structures	From the critical realist perspective 'structures' refer to groups of related objects and practices that comprise the entities that researchers wish to study within a given context. Structures possess novel properties, characteristics and

	tendencies distinct to themselves, that cannot be reduced to or explained solely in reference to their component entities.
Synthesis	'Synthesis' refers to a form of logic that seeks to reconstitute previously separated elements to form a new whole.
Theoretical generalisation	From the critical realist perspective, 'theoretical generalisation' refers to the practice of drawing theoretical propositions, principles and/or statements from the findings of a study for a more reflective consideration of the degree to which those propositions may be applicable in other settings and circumstances (i.e. 'x in y circumstances may lead to or explain z').
Theoretical pluralism	'Theoretical pluralism' refers to the practice of viewing a research topic or phenomenon through multiple theoretical 'lenses', thereby bringing various (often contradictory) perspectives and assumptions to the research process.
Theory	'Theory' refers to a set of imaginary statements or principles, analytic and/or synthetic in nature, that are designed to provide systems of meaning within which explanations of the world can be formed.
Triangulation	'Triangulation' refers to the use of multiple data sources potentially collected through the use of multiple methods, in order to corroborate findings as a test for research trustworthiness.

APPENDIX B – REALIST REVIEW: RECORD OF SEARCHES, EXCLUSIONS, DATA EXTRACTION AND QUALITY APPRAISAL

Search and Data Analysis Procedure

Quality Guidelines: RAMESES publication guidelines for Realist Review (+ PRISMA); Quality Assessment Screening: CASP Systematic Reviews Checklist

1. Initial scoping search performed in Scopus for all articles relating to "hospital performance", "hospital improvement" and "public hospital".
2. Articles included by abstract are allocated/coded to 'environment' 'attribute' and/or 'strategy' categories with subcategories developed inductively from the data.
3. Subcategories and key terms from the data are used to create search strategies for the review of reviews literature search. Note: search term "public hospital" later changed to "hospital" in Scopus, and prior searches repeated with new search term.
4. Review article search performed in Scopus, PubMed, Google Scholar and Grey Literature. Inclusion by abstract and then screened by full-text for inclusion (screened for suitability and rigour, using the CASP tool for systematic reviews).
5. Review of categories and subcategories, with recategorisation / renaming etc. as required. Plus new searches for newly created categories (and any necessary snowball follow-ups from full text review).
6. Quality review using CASP checklist for systematic reviews
7. Data extraction/ tables for data presentation:

Table 1. PRISMA process chart for the identification and screening of included articles
Table 2. Summary of search terms
Table 3. Summary of filtering process used to determine full review
Table 4. Summary of key features relevant to included article (discipline, sector, timeframe, methods, quality screening assessment)
Table 5. Summary of most common performance definitions / measurements (DVs)
Table 6. Summary of most common factors discussed/analysed within the literature (Ivs)
Table 7. Summary of the linkages made between determinants and performance
Table 8. Summary of the linkages made between categories of performance determinants
Table 9. Other (see ideas section at the bottom of this page).

7. Discussion / Conclusion

Appendix J List of Included Articles
Appendix JI Data Extraction Template
Appendix JII CASP ratings for included articles

Record of Scoping Search Results

																																								DV (Performance)							
Article ID	Author (first) & Date	Quick Description of IV	**1. Environment**	*1.1 Technical*	1.1.1 Munificence	1.1.2 Complexity	1.1.3 Dynamism	*1.2 Institutional*	1.2.1 Regulatory	1.2.2 Resources	1.2.3 Legitimacy	*1.3 Contingency Theory*	*1.4 Configuration theory*	**2. Organisational Attributes**	*2.1 Structural Attributes*	2.1.1 Org Structure	2.1.2 Centralisation	2.1.3 Formalisation	2.1.4 Specialisation	*2.2 Managerial Attributes*	2.2.1 Leadership Qualities	2.2.2 Transactional/Transformational	2.2.3 Leader/Manager Relationship	2.2.4 Leader/Mgr-Clinician relationship	*2.3 Cultural Attributes*	2.3.1 Symbolic	2.3.2 Practices	2.3.3 Values	2.3.4 Competing Values Framework	*2.4 Resources*	2.4.1 Capabilities/Flexibility	2.4.2 QI Maturity	2.4.4 IT	**3. Strategy**	*3.1 Strategy Content*	3.1.1 Learning	3.1.2 Information & Communication	3.1.3 Innovation	3.1.4 Groups (HRM, teamwork etc.)	3.1.5 Financial	*3.2 Strategy Implementation*	3.2.1 Stage of Change	3.2.2 Continuous Improvement	**4. Interaction between factors**	**5. Performance**	*5.1 Accessibility*	*5.2 Continuity of Care*	*5.3 Effectiveness*	*5.4 Efficiency & Sustainability*	*5.5 Responsiveness*	*5.6 Safety*
Scopus database search articles																																															
1A	Afsharkazemi 2013	Multi-factor												1						1	1												1								1	1						
2A	Akashi 2004	User-fees/co-payment																																				1					1				
3A	Alaraki 2014	TQM							1												1													1	1		1			1						
4A	Ali 2013 (awaiting full text)																																														
5A	Alolayyan 2011	TQM																			1										1				1	1		1			1				1	1		
6A	Arocena 2007	Management contracts													1																							1						1		
7A	Arvanitis 2016	ICT & innovation																															1			1	1								1		
8A	Aryankhesal 2013	P4P							1																																				1				
9A	Bloom 2013	Enviro of competition			1		1								1						1																								1	1		1
10A	Chung 2015	QI									1				1																			1						1					1		
11A	Cleven 2016	QI - process orientation													1																			1						1					1	1		
12A	García-Lacalle 2010	Geography/demog.	1		1																																								1	1		
13A	Guerrero 2009	Competition (negative)		1					1		1																																			1		
14A	Heurich 2015	Innovation & capability																															1			1	1								1	1		1
15A	Jacobs 2013	Culture - CVF														1					1				1				1																1				
16A	Kamariah 2017	Entrepreuneurship & capability																			1										1			1												1	1		
17A	La Forgia 2009	PPP					1		1							1																						1							1	1		1
18A	Lev 2009	Absorptive capacity				1	1																								1													1				
19A	Madorrán García 2006	Strategy																																														
20A	Maharani 2017	Corporatisation	1												1		1		1																										1	1		
21A	McPake 2003	Corporatisation						1							1	1	1																												1	1		1
22A	Mitropoulos 2017	Economic crisis			1				1						1																															1		
23A	Mutter 2010	Environment			1	1		1																																						1		
24A	Naranjo-Gil 2009	Balanced scorecard																																	1						1				1			
25A	Naveh 2005	QI & implementation																																	1						1		1			1		
26A	Noh 2006	Urban/rural, competition	1												1																														1				
27A	Pan 2015	Competition	1		1		1		1						1																															1		1
28A	Pham 2011	Resources (staff, beds)	1							1																																				1		
29A	Pinnarelli 2012	P4P & public data			1					1	1																											1		1				1		1
30A	Rego 2010	Corporatisation													1																				1										1		
31A	Rezaee 2015	Geography/demog.	1			1				1																																				1		
32A	Rotar 2016	Governance & Clinicians																		1				1																					1				

| | | |

Record of Searches

REVIEW OF REVIEWS SEARCH

Inclusion Criteria

Dependent variable - performance at the hospital LOA (efficiency and sustainability, effectiveness, accessibility, safety)

Literature Review (any - systematic, scoping, critical etc)

Published Jan 2000 - June 2017

Any study method or approach

	Database	Date	Fields	Search Terms	Citation Results	Reviewed by Title	Included by Abstract	Snowball Additions	Subtotal
Contingency/Configuration									1
Search 2	Scopus	20/06/2017	Title/Abstract/Keyword, restricted 2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY ("Miles and Snow") OR TITLE-ABS-KEY ("Miles & Snow") OR TITLE-ABS-KEY (strateg*) OR TITLE-ABS-KEY ("contingency theory") OR TITLE-ABS-KEY ("configuration theory")) AND (LIMIT-TO (DOCTYPE , "re"))	11	11	0		
Search 3	Scopus	20/06/2017	Title/Abstract/Keyword, restricted 2000-2017	TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY ("Miles and Snow") OR TITLE-ABS-KEY ("Miles & Snow") OR TITLE-ABS-KEY ("contingency theory") OR TITLE-ABS-KEY ("configuration theory")	3	3	0		

Search 101	Scopus	30/06/2017	Title/Abstract/Keyword, restricted 2000-2017	TITLE-ABS-KEY (hospital) AND TITLE-ABS-KEY ("Miles and Snow") OR TITLE-ABS-KEY ("Miles & Snow") OR TITLE-ABS-KEY ("contingency theory") OR TITLE-ABS-KEY ("configuration theory")	6	6	0		
Search 4	PubMed	20/06/2017	Title/Abstract, restricted 2000-2017	((((((("public hospital"[Title/Abstract]) AND performance[Title/Abstract]) AND ("Miles[Title/Abstract] AND Snow"[Title/Abstract])) OR "Miles & Snow"[Title/Abstract]) OR "contingency theory"[Title/Abstract]) OR "configuration theory"[Title/Abstract]	7	7	0		
Search 5	Google Scholar	20/06/2017	All, restricted 2000-2017	"public hospital" AND "Miles & Snow" OR "contingency theory" OR "configuration theory" (note - OR searches done separately)		110	1		
Search 82	Cochrane	29/06/2017	Title, Abstract, Keywords in Cochrane Reviews	contingency theory OR Miles and Snow OR configuration theory	0	0	0		
	Snowball							0	
Capabilities									2

Search 6	Scopus	20/06/2017	Title/Abstract/Keyword, restricted 2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (capabilities) OR TITLE-ABS-KEY ("absorptive capacity") OR TITLE-ABS-KEY ("resource based view") OR TITLE-ABS-KEY (rbv)) AND (LIMIT-TO (DOCTYPE , "re"))	12	12	0
Search 7	Scopus	20/06/2017	Title/Abstract/Keyword, restricted 2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (capabilities) OR TITLE-ABS-KEY ("absorptive capacity") OR TITLE-ABS-KEY ("resource based view") OR TITLE-ABS-KEY (rbv))	244	244	0
Search 102	Scopus	30/06/2017	Title/Abstract/Keyword, restricted 2000-2017	(TITLE-ABS-KEY (hospital) AND TITLE-ABS-KEY (capabilities) OR TITLE-ABS-KEY ("absorptive capacity") OR TITLE-ABS-KEY ("resource based view") OR TITLE-ABS-KEY (rbv)) AND (LIMIT-TO (DOCTYPE , "re"))	550	200	0
Search 8	PubMed	20/06/2017	Title/Abstract, restricted 2000-2017	(((((("public hospital"[Title/Abstract]) AND "performance"[Title/Abstract]) AND "capabilities"[Title/Abstract]) OR "absorptive capacity"[Title/Abstract]) OR "resource based view"[Title/Abstract]) OR RBV[Title/Abstract]	331	200	0
Search 9	Google Scholar	20/06/2017	All, restricted 2000-2017	public hospital "capabilities" "performance"		150	1

Search 83	Cochrane Snowball	29/06/2017	Title, Abstract, Keywords in Cochrane Reviews		capabilities OR absorptive capacity OR resource based view OR RBV	23	23	0	1
Corporatisation									2
Search 10	Scopus	20/06/2017	Title/Abstract/Keyword, restricted	2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (corporatisation) OR TITLE-ABS-KEY (corporatization) OR TITLE-ABS-KEY (competition)) AND (LIMIT-TO (DOCTYPE , "re"))	2	2	0	
Search 11	Scopus	20/06/2017	Title/Abstract/Keyword, restricted	2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (corporatisation) OR TITLE-ABS-KEY (corporatization) OR TITLE-ABS-KEY (competition))	18	18	0	
Search 103	Scopus	30/06/2017	Title/Abstract/Keyword, restricted	2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (corporatisation) OR TITLE-ABS-KEY (corporatization) OR TITLE-ABS-KEY (competition)) AND (LIMIT-TO (DOCTYPE , "re"))	2	3	0	

Search 12	PubMed	20/06/2017	Title/Abstract, restricted 2000-2017	(((((("public hospital"[Title/Abstract]) AND "performance"[Title/Abstract]) AND "corpratisation"[Title/Abstract]) OR "corporatization"[Title/Abstract]) OR "competition"[Title/Abstract])	9	9	1		
Search 13	Google Scholar	20/06/2017	All, restricted 2000-2017	"public hospital" corporatisation / public hospital" corporatization		80	0		
Search 84	Cochrane	29/06/2017	Title, Abstract, Keywords in Cochrane Reviews	hospital AND corporatisation OR corporatization OR competition	4	4	0		
	Snowball							1	
TQM									3
Search 14	Scopus	20/06/2017	Title/Abstract/Keyword, restricted 2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY ("total quality management") OR TITLE-ABS-KEY (tqm) OR TITLE-ABS-KEY ("process improvement") OR TITLE-ABS-KEY (reengineering) OR TITLE-ABS-KEY (reorgani*ation)) AND (LIMIT-TO (DOCTYPE , "re"))	12	12	0		

Search 15	Scopus	20/06/2017	Title/Abstract/Keyword, restricted 2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY ("total quality management") OR TITLE-ABS-KEY (tqm) OR TITLE-ABS-KEY ("process improvement") OR TITLE-ABS-KEY (reengineering) OR TITLE-ABS-KEY (reorgani*ation))	96	96	1	
Search 104	Scopus	30/06/2017	Title/Abstract/Keyword, restricted 2000-2017	(TITLE-ABS-KEY (hospital) AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY ("total quality management") OR TITLE-ABS-KEY (tqm) OR TITLE-ABS-KEY ("process improvement") OR TITLE-ABS-KEY (reengineering) OR TITLE-ABS-KEY (reorgani*ation)) AND (LIMIT-TO (DOCTYPE , "re "))	266	120	0	
Search 16	PubMed	20/06/2017	Title/Abstract, restricted 2000-2017	((((("public hospital"[Title/Abstract]) AND "performance"[Title/Abstract]) AND "total quality management"[Title/Abstract]) OR TQM[Title/Abstract]) OR "process improvement"[Title/Abstract]	122	122	1	
Search 17	Google Scholar	20/06/2017	All, restricted 2000-2017	literature review "public hospital" "Total quality management"		120	1	
Search 85	Cochrane	29/06/2017	Title, Abstract, Keywords in Cochrane Reviews	hospital AND total quality management OR TQM OR reengineering	117	117	0	

	Snowball	20/06/2017						0	
Turbulence									0
Search 18	Scopus	20/06/2017	Title/Abstract/Keyword, restricted 2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (turbulence) OR TITLE-ABS-KEY ("environmental turbulence") OR TITLE-ABS-KEY ("uncertainty") OR TITLE-ABS-KEY ("environmental uncertainty")) AND (LIMIT-TO (DOCTYPE , "re"))	0	0	0		
Search 19	Scopus	20/06/2017	Title/Abstract/Keyword, restricted 2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (turbulence) OR TITLE-ABS-KEY ("environmental turbulence") OR TITLE-ABS-KEY ("uncertainty") OR TITLE-ABS-KEY ("environmental uncertainty"))	19	19	0		
Search 105	Scopus	30/06/2017	Title/Abstract/Keyword, restricted 2000-2017	(TITLE-ABS-KEY ("hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (turbulence) OR TITLE-ABS-KEY ("environmental turbulence") OR TITLE-ABS-KEY ("uncertainty") OR TITLE-ABS-KEY ("environmental uncertainty"))	35	35	0		
Search 20	PubMed	20/06/2017	Title/Abstract, restricted 2000-2017	((("public hospital"[Title/Abstract]) AND "performance"[Title/Abstract]) AND "environmental turbulence"[Title/Abstract]) OR turbulence[Title/Abstract]) OR "environmental uncertainty"[Title/Abstract]	446	220	0		

Search 21	Google Scholar	20/06/2017	Title/Abstract, restricted 2000-2017	public hospital "turbulence"		100	0		
Search 86	Cochrane Snowball	29/06/2017	Title, Abstract, Keywords in Cochrane Reviews	hospital AND turbulence	0	0	0	0	
Complexity									3
Search 22	Scopus	20/06/2017	Title/Abstract/Keyword, restricted 2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY ("complexity theory") OR TITLE-ABS-KEY (complexity) OR TITLE-ABS-KEY ("systems thinking") OR TITLE-ABS-KEY ("systems perspective")) AND (LIMIT-TO (DOCTYPE , "re"))	2	2	0		
Search 23	Scopus	20/06/2017	Title/Abstract/Keyword, restricted 2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY ("complexity theory") OR TITLE-ABS-KEY (complexity) OR TITLE-ABS-KEY ("systems thinking") OR TITLE-ABS-KEY ("systems perspective"))	45	45	0		

Search 106	Scopus	30/06/2017		Title/Abstract/Keyword, restricted 2000-2017	(TITLE-ABS-KEY (hospital) AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY ("complexity theory") OR TITLE-ABS-KEY (complexity) OR TITLE-ABS-KEY ("systems thinking") OR TITLE-ABS-KEY ("systems perspective")) AND (LIMIT-TO (DOCTYPE , "re "))	66	66	0	
Search 24	PubMed	20/06/2017		Title/Abstract, restricted 2000-2017	((((("public hospital"[Title/Abstract]) AND "performance"[Title/Abstract]) AND "complexity theory"[Title/Abstract]) OR "systems thinking"[Title/Abstract] OR "systems perspective"[Title/Abstract]	194	194	1	
Search 25	Google Scholar	20/06/2017		Title/Abstract, restricted 2000-2017	public hospital "complexity theory" "literature review"		100	0	
Search 87	Cochrane	29/06/2017	Title, Abstract, Keywords in Cochrane Reviews		hospital AND complexity OR complexity theory OR systems thinking OR systems perspective	124	124	0	
	Snowball								2
Enviro - Financial									13

Search 22	Scopus	17/05/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017	(TITLE-ABS-KEY (hospital) AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (reimbursement)	153	153	2	
Search 23	Scopus	17/05/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017	(TITLE-ABS-KEY (hospital) AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (funding)) AND (LIMIT-TO (DOCTYPE , "re"))	75	75	1	
Search 24	Scopus	17/05/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017	(TITLE-ABS-KEY (hospital) AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (contracting)) AND (LIMIT-TO (DOCTYPE , "re"))	16	16	0	
Search 25	Scopus	21/06/2017	Title/Abstract, restricted 2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY ("financial position") OR TITLE-ABS-KEY ("fiscal environment") OR TITLE-ABS-KEY (economy) OR TITLE-ABS-KEY (funding) OR TITLE-ABS-KEY (reimbursement) OR TITLE-ABS-KEY (munificence))	8	8	0	
Search 26	Scopus	21/06/2017	Title/Abstract, restricted 2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (finance) OR TITLE-ABS-KEY (fiscal) OR TITLE-ABS-KEY (econom*) AND TITLE-ABS-KEY (environment) OR TITLE-ABS-KEY (context))	1	1	0	

Search 27	Scopus	21/06/2017	Title/Abstract, restricted 2000-2017	(TITLE-ABS-KEY ("hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (finance) OR TITLE-ABS-KEY (fiscal) OR TITLE-ABS-KEY (econom*) AND TITLE-ABS-KEY (environment) OR TITLE-ABS-KEY (context) OR TITLE-ABS-KEY (munificence)) AND (LIMIT-TO (DOCTYPE , "re"))	53	53	0	
Search 28	Scopus	21/06/2017	Title/Abstract, restricted 2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY ("resource dependence") OR TITLE-ABS-KEY ("resource dependency") OR TITLE-ABS-KEY (munificence) OR TITLE-ABS-KEY (resource W/6 access))	0	0	0	
Search 29	PubMed	21/06/2017	Title/Abstract, restricted 2000-2017	((((((("public hospital"[Title/Abstract]) AND performance[Title/Abstract]) AND finance[Title/Abstract]) OR fiscal[Title/Abstract]) OR economy[Title/Abstract]) OR munificence[Title/Abstract]	2647	200	2	
Search 30	Google Scholar	21/06/2017	All, restricted 2000-2017	"public hospital" "literature review" fiscal environment / financial environment / resource dependence / resourcing / munificence		120	1	
Search 88	Cochrane	29/06/2017	Title, Abstract, Keywords in Cochrane Reviews	hospital AND performance AND financial model OR funding OR reimbursement OR fiscal	336	336	1	

	Snowball							6	
Enviro - Ownership/Demography/Geography									5
Search 31	Scopus	21/06/2017	Title/Abstract/Keyword, restricted to 'Review' and	2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (demograph*) AND TITLE-ABS-KEY (geograph*))	0	0	0	
Search 32	Scopus	21/06/2017	Title/Abstract/Keyword, restricted to 'Review' and	2000-2017	(TITLE-ABS-KEY (hospital) AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (demograph*) AND TITLE-ABS-KEY (geograph*)) AND (LIMIT-TO (DOCTYPE , "re "))	3	3	0	
Search 33	Google Scholar	21/06/2017	All, restricted	2000-2017	public hospital "literature review" demography demographics geography / population		80	1	
Search 89	Cochrane	29/06/2017	Title, Abstract, Keywords in Cochrane Reviews		hospital AND demograph* OR geograph* OR ownership	86	86	0	
	Snowball							4	

Enviro - Regulation								9
Search 34	Scopus	21/06/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (regulation) OR TITLE-ABS-KEY (accreditation) OR TITLE-ABS-KEY (inspection)) AND (LIMIT-TO (DOCTYPE , "re"))	6	6	0	
Search 35	Scopus	21/06/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (regulation) OR TITLE-ABS-KEY (accreditation) OR TITLE-ABS-KEY (inspection))	93	93	0	
Search 36	PubMed	21/06/2017	Title/Abstract, restricted 2000-2017	((((((((("public hospital"[Title/Abstract]) AND performance[Title/Abstract]) AND regulation[Title/Abstract]) OR accreditation[Title/Abstract]) OR inspection[Title/Abstract])	3026	220	3	
Search 37	Google Scholar	21/06/2017	All, restricted 2000-2017	public hospital "literature review" regulation inspection accreditation		100	0	
Search 90	Cochrane	29/06/2017	Title, Abstract, Keywords in Cochrane Reviews	hospital AND regulation OR accrediation OR inspection	57	57	1	

	Snowball						5	
Enviro - Reputation								13
Search 38	Scopus	22/06/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (reputation) OR TITLE-ABS-KEY ("public reporting") OR TITLE-ABS-KEY (transparen*) OR TITLE-ABS-KEY ("mandatory reporting"))	4	4	0	
Search 39	Scopus	22/06/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017	(TITLE-ABS-KEY (hospital) AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (reputation) OR TITLE-ABS-KEY ("public reporting") OR TITLE-ABS-KEY (transparen*) OR TITLE-ABS-KEY ("mandatory reporting")) AND (LIMIT-TO (DOCTYPE , "re "))	115	115	1	
Search 40	PubMed	22/06/2017	Title/Abstract, restricted 2000-2017	(((((("public hospital"[Title/Abstract]) AND performance[Title/Abstract]) AND reputation[Title/Abstract]) OR "public reporting"[Title/Abstract]) OR "mandatory reporting"[Title/Abstract]) OR transparency[Title/Abstract]	1586	180	3	
Search 41	Google Scholar	22/06/2017	All, restricted 2000-2017	public hospital "literature review" reporting		120	2	

Search 91	Cochrane Snowball	29/06/2017	Title, Abstract, Keywords in Cochrane Reviews		hospital AND reputation OR public reporting	150	150	1 6	
Attributes - Governance & Structure									12
Search 42	Scopus	22/06/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017		(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (governance) OR TITLE-ABS-KEY (board) OR TITLE-ABS-KEY (clinician AND membership)) AND (LIMIT-TO (DOCTYPE , "re"))	5	5	0	
Search 43	PubMed	22/06/2017	Title/Abstract, restricted 2000-2017		(((((("public hospital"[Title/Abstract]) AND performance[Title/Abstract]) AND governance[Title/Abstract]) OR board[Title/Abstract]) OR "clinician membership"[Title/Abstract])	2886	230	3	
Search 44	Google Scholar	22/06/2017	All, restricted 2000-2017		public hospital "literature review" governance		120	2	

Search 92	Cochrane Snowball	29/06/2017	Title, Abstract, Keywords in Cochrane Reviews	hospital AND governance OR board OR structure	253	253	0	7	
Attributes - Leadership									11
Search 45	Scopus	22/06/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017	(TITLE-ABS-KEY (hospital) AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (leaders*) OR TITLE-ABS-KEY ("senior management") OR TITLE-ABS-KEY ("top management") OR TITLE-ABS-KEY (ceo)) AND (LIMIT-TO (DOCTYPE , "re"))	11	11	0		
Search 46	PubMed	22/06/2017	Title/Abstract, restricted 2000-2017	(((((("public hospital"[Title/Abstract]) AND performance[Title/Abstract]) AND leaders*[Title/Abstract]) OR "senior management"[Title/Abstract]) OR "top management"[Title/Abstract]) OR "CEO"[Title/Abstract])	87	87	2		
Search 47	Google Scholar	22/06/2017	All, restricted 2000-2017	public hospital "literature review" leadership		100	0		

Search 93	Cochrane Snowball	30/06/2017	Title, Abstract, Keywords in Cochrane Reviews	hospital AND leader* OR senior management OR top management OR CEO	23	23	1	8	
Attributes - Culture									7
Search 48	Scopus	23/06/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (culture) OR TITLE-ABS-KEY (readiness) OR TITLE-ABS-KEY (receptivity)) AND (LIMIT-TO (DOCTYPE , "re"))	5	5	1		
Search 49	Scopus	23/06/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017	(TITLE-ABS-KEY (hospital) AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (culture)) AND (LIMIT-TO (DOCTYPE , "re"))	173	173	3		
Search 50	PubMed	23/06/2017	Title/Abstract, restricted 2000-2017	((("public hospital"[Title/Abstract]) AND performance[Title/Abstract]) AND culture[Title/Abstract])	1	1	0		

Search 51	PubMed	23/06/2017		Title/Abstract, restricted 2000-2017	((((hospital [Title/Abstract]) AND performance[Title/Abstract]) AND culture[Title/Abstract])	43	43	0	
Search 52	Google Scholar	23/06/2017		All, restricted 2000-2017	public hospital performance culture		80	0	
Search 53	Google Scholar	23/06/2017		All, restricted 2000-2017	public hospital performance culture "literature review"		60	0	
Search 94	Cochrane	30/06/2017	Title, Abstract, Keywords in Cochrane Reviews		hospital AND culture OR readiness OR receptivity	38	38	0	
	Snowball	23/06/2017							3
Strategy - Strategic Planning									5

Search 54	Scopus	23/06/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (strateg*) OR TITLE-ABS-KEY (strategic AND plan) OR TITLE-ABS-KEY ("strategic planning") OR TITLE-ABS-KEY ("balanced scorecard")) AND (LIMIT-TO (DOCTYPE , "re"))	11	11	0	
Search 55	Scopus	23/06/2017	Title/Abstract/Key word, restricted to 'Review' and 2000-2017	(TITLE-ABS-KEY ("public") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (strateg*) OR TITLE-ABS-KEY (strategic AND plan) OR TITLE-ABS-KEY ("strategic planning")) AND (LIMIT-TO (DOCTYPE , "re "))	779	140	0	
Search 56	PubMed	23/06/2017	Title/Abstract, restricted 2000-2017	((((hospital[Title/Abstract]) AND performance[Title/Abstract]) AND strateg*[Title/Abstract])	186	186	0	
Search 56	PubMed	23/06/2017	Title/Abstract, restricted 2000-2017	((((hospital[Title/Abstract]) AND performance[Title/Abstract]) AND strategic planning[Title/Abstract])	3	3	0	
Search 95	Cochrane	30/06/2017	Title, Abstract, Keywords in Cochrane Reviews	hospital AND strategy OR strategic planning	239	239	0	

	Snowball	Google Scholar	23/06/2017		All, restricted 2000-2017	hospital performance strategy "literature review" / strategic plann* / balanced scorecard		140	1
									4
Strategy - Financial									9
Search 57		Scopus	23/06/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017		(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (financial AND strategy) OR TITLE-ABS-KEY (funding AND model) OR TITLE-ABS-KEY (incentive) OR TITLE-ABS-KEY (co-contribution)) AND (LIMIT-TO (DOCTYPE , "re"))	10	10	0
Search 58		Scopus	23/06/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017		(TITLE-ABS-KEY ("hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (financial AND strategy) OR TITLE-ABS-KEY (funding AND model) OR TITLE-ABS-KEY (incentive) OR TITLE-ABS-KEY (co-contribution)) AND (LIMIT-TO (DOCTYPE , "re "))	175	175	6
Search 59		PubMed	23/06/2017	Title/Abstract, restricted 2000-2017		(((((("public hospital"[Title/Abstract]) AND performance[Title/Abstract]) AND financial strategy[Title/Abstract]) OR funding model[Title/Abstract]) OR incentive[Title/Abstract]) OR co-contribution[Title/Abstract]	993	200	1

Search 60	PubMed	23/06/2017	Title/Abstract, restricted 2000-2017	((((("hospital"[Title/Abstract]) AND performance[Title/Abstract]) AND financial strategy[Title/Abstract]) OR funding model[Title/Abstract]) OR incentive[Title/Abstract]) OR co-contribution[Title/Abstract]	993	0	0		
Search 96	Cochrane	30/06/2017	Title, Abstract, Keywords in Cochrane Reviews	hospital AND financial strategy OR funding model OR incentive OR co-contribution	151	151	1		
	Google Scholar	23/06/2017	All, restricted 2000-2017	hospital performance "literature review" financial strategy / funding model		150	1		
	Snowball							0	
Strategy - QI									42
Search 61	Scopus	27/06/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (quality AND improvement) OR TITLE-ABS-KEY ("continuous improvement") OR TITLE-ABS-KEY (lean) OR TITLE-ABS-KEY ("six sigma") OR TITLE-ABS-KEY ("process improvement")) AND (LIMIT-TO (DOCTYPE , "re "))	14	14	0		

Search 62	Scopus	27/06/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017	(TITLE-ABS-KEY ("hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (quality AND improvement) OR TITLE-ABS-KEY ("continuous improvement") OR TITLE-ABS-KEY (lean) OR TITLE-ABS-KEY ("six sigma") OR TITLE-ABS-KEY ("process improvement")) AND (LIMIT-TO (DOCTYPE , "re "))	538	260	4	
Search 63	PubMed	27/06/2017	Title/Abstract, restricted 2000-2017	((((((("public hospital"[Title/Abstract]) AND performance[Title/Abstract]) AND "quality improvement"[Title/Abstract]) OR "continuous improvement"[Title/Abstract]) OR lean[Title/Abstract]) OR "six sigma"[Title/Abstract]) OR "process improvement"[Title/Abstract]	2188	280	11	
Search 64	PubMed	27/06/2017	Title/Abstract, restricted 2000-2017	(((((("hospital"[Title/Abstract]) AND performance[Title/Abstract]) AND "quality improvement"[Title/Abstract]) OR "continuous improvement"[Title/Abstract]) OR lean[Title/Abstract]) OR "six sigma"[Title/Abstract]) OR "process improvement"[Title/Abstract]	2188	0	0	
Search 65	Google Scholar	27/06/2017	All, restricted 2000-2017	public hospital "literature review" quality continuous process improvement lean six sigma		200	6	
Search 97	Cochrane	30/06/2017	Title, Abstract, Keywords in Cochrane Reviews	hospital AND "quality improvement" OR "continuous improvement" OR lean OR "six sigma" OR "process improvement"	22	22	0	

	Snowball							21	
Strategy - Innovation									16
Search 66	Scopus	28/06/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017		(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (innovation) OR TITLE-ABS-KEY (technology) OR TITLE-ABS-KEY (disruptive)) AND (LIMIT-TO (DOCTYPE , "re"))	11	11	0	
Search 67	Scopus	28/06/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017		(TITLE-ABS-KEY (hospital) AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (innovation) OR TITLE-ABS-KEY (technology) OR TITLE-ABS-KEY (disruptive)) AND (LIMIT-TO (DOCTYPE , "re"))	415	220	1	
Search 68	PubMed	28/06/2017	Title/Abstract, restricted 2000-2017		((((((hospital[Title/Abstract]) AND performance[Title/Abstract]) AND innovat*[Title/Abstract])	28	28	0	
Search 69	Google Scholar	28/06/2017	All, restricted 2000-2017		hospital performance innovation "literature review"		110	4	
Search 98	Cochrane	30/06/2017	Title, Abstract, Keywords in Cochrane Reviews		hospital AND innovation	4	4	0	

	Snowball						11	
Strategy - HR								5
Search 70	Scopus	28/06/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017	(TITLE-ABS-KEY ("public hospital") AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (human AND resource) OR TITLE-ABS-KEY (hr) OR TITLE-ABS-KEY (workforce AND design) OR TITLE-ABS-KEY (training) OR TITLE-ABS-KEY ("performance management")) AND (LIMIT-TO (DOCTYPE , "re"))	24	24	1	
Search 71	Scopus	28/06/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017	(TITLE-ABS-KEY (hospital) AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (human AND resource) OR TITLE-ABS-KEY (hr) OR TITLE-ABS-KEY (workforce AND design) OR TITLE-ABS-KEY (training) OR TITLE-ABS-KEY ("performance management")) AND (LIMIT-TO (DOCTYPE , "re"))	741	140	0	
Search 72	Scopus	28/06/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017	(TITLE-ABS-KEY (hospital) AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (human AND resource) OR TITLE-ABS-KEY (hr) OR TITLE-ABS-KEY (workforce AND design)) AND (LIMIT-TO (DOCTYPE , "re "))	336	100	0	
Search 73	PubMed	28/06/2017	Title/Abstract, restricted 2000-2017	((("public hospital"[Title/Abstract]) AND performance[Title/Abstract]) AND human resources[Title/Abstract]) OR HR[Title/Abstract]) OR workforce design[Title/Abstract]	3668	60	0	

Search 74	PubMed	29/06/2017	Title/Abstract, restricted 2000-2017	((((hospital[Title/Abstract]) AND performance[Title/Abstract]) AND human resources[Title/Abstract]) OR workforce design[Title/Abstract])	12	12	0		
Search 75	Google Scholar	29/06/2017	All, restricted 2000-2017	hospital performance "literature review" human resource management		220	2		
Search 98	Cochrane	30/06/2017	Title, Abstract, Keywords in Cochrane Reviews	hospital AND "human resource" OR "human resources" OR "workforce design" OR "performance management"	5	5	0		
	Snowball							2	
Strategy - Learning									12
Search 76	Scopus	29/06/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017	(TITLE-ABS-KEY (hospital) AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (learning) OR TITLE-ABS-KEY (communication) OR TITLE-ABS-KEY (information) OR TITLE-ABS-KEY (knowledge)) AND (LIMIT-TO (DOCTYPE , "re"))	28	28	0		

Search 77	Scopus	29/06/2017	Title/Abstract/Keyword, restricted to 'Review' and 2000-2017	(TITLE-ABS-KEY (hospital) AND TITLE-ABS-KEY (performance) AND TITLE-ABS-KEY (learning) OR TITLE-ABS-KEY (communication) OR TITLE-ABS-KEY (information) OR TITLE-ABS-KEY (knowledge)) AND (LIMIT-TO (DOCTYPE , "re "))	1213	180	0	
Search 78	PubMed	29/06/2017	Title/Abstract, restricted 2000-2017	((((hospital[Title/Abstract]) AND performance[Title/Abstract]) AND learning[Title/Abstract]) OR communication[Title/Abstract]) OR information[Title/Abstract]) OR knowledge[Title/Abstract])	102973	120	1	
Search 79	PubMed	29/06/2017	Title/Abstract, restricted 2000-2017	((((hospital[Title/Abstract]) AND performance[Title/Abstract]) AND learning[Title/Abstract])	36	36	0	
Search 80	Google Scholar	29/06/2017	All, restricted 2000-2017	hospital performance "literature review" learning / knowledge		150	1	
Search 99	Cochrane	30/06/2017	Title, Abstract, Keywords in Cochrane Reviews	hospital AND learning	22	22	0	

Search 100	Cochrane Snowball	30/06/2017	Title, Abstract, Keywords in Cochrane Reviews	hospital AND "knowledge transfer" OR "knowledge acquisition" OR "diffusion of innovations"	22	22	0	10		
Multi-factor										10
	Snowball	20-30/06/2017					10			
Grey Literature										0
Search 107	CRD - UniYork	30/06/2017	Title	(hospital):TI AND (performance):TI IN DARE, NHSEED, HTA	3	3	0			
Search 108	AHRQ Research database	30/06/2017	All	hospital performance literature review	278	278	0			

Search 109	NY Acad. Of Med. Grey Lit Report	30/06/2017	All	hospital performance literature review	0	0	0	
Search 110	NIHR	30/06/2017	All	hospital performance literature review		50	0	
Search 111	Kings Fund	30/06/2017	All	hospital performance literature review	4	4	0	
Search 112	IHI	30/06/2017	All	hospital performance literature review	12	12	0	

Record of Exclusions

RECORD OF EXCLUSION (full text)

Key (rationale for exclusion)
1 = Methodology (search strategy / inclusion criteria/ quality assessment) not reported. CASP score <5.
2 = Does not identify/report/discuss hospital performance as outcome variable.

Exclusion

#	Author/Date	Rationale
1	Ahmed (2013)	1
2	Al-Awa (2011)	1
3	Al-Balushi (2014)	2
4	Almoajel (2012)	1
5	Behrouzi et al (2014)	1
6	Bevan & Skellern (2011)	1
7	Birks et al (2014)	2
8	Boonstra et al (2014)	2
9	Braithwaite & Travaglia (2008)	1
10	Brien et al (2010)	1
11	Carey et al (2015)	2
12	Chambers (2012)	1
13	Chambers & Cornforth (2010)	1

14	Chughtai & Blanchet (2017)	2
15	Colquhoun (2010)	2
16	Conrad & Perry (2009)	1
17	Contandriopoulos et al (2010)	2
18	Coward (2010)	2
19	Crema & Verbano (2013)	2
20	Dan (2015)	1
21	Davis & Savage (2003)	1
22	Dilley (2012)	2
23	Dixon-Woods (2010)	1
24	Eldridge (2011)	1
25	Faber et al (2009)	2
26	Farley et al (2014)	1
27	Ferlie et al (2012)	2
28	Fleuren et al (2004)	2
29	French et al (2014)	2
30	Gagliardi et al (2016)	2
31	Garg et al (2005)	2
32	Gomes (2016)	1
33	Greenhalgh et al (2004)	2
34	Greenhalgh & Wieringa (2011)	2
35	Groene et al (2013)	2

36	Groene et al (2011)	1
37	Gurd & Gao (2008)	1
38	Harris et al (2007)	2
39	Hearld et al (2008)	2
40	Heppell (2016)	1
41	Innis et al (2015)	2
42	Fryer et al (2007)	1
43	Learmonth (2003)	1
44	Machado & Carvalho (2014)	1
45	Mannion & Davies (2008)	1
46	Markazi-Moghaddam (2016)	2
47	Mays et al (2009)	1
48	Meacock et al (2014)	1
49	Michie & West (2004)	1
50	Mick & Shay (2014)	1
51	Montgomery et al (2015)	2
52	Goes & Friedman (2015)	1
53	Musa & Othman (2016)	1
54	Oborn et al (2013)	2
55	Pentland et al (2011)	2
56	Piening (2013)	1

57	Rashman et al (2009)	2
58	Robinson et al (2005)	1
59	Roehrich et al (2014)	2
60	Rye & Kimberly (2007)	2
61	Saltman et al (2011)	1
62	Schmutz & Manser (2013)	2
63	Scott-Findlay & Estabrooks (2006)	2
64	Shay & White (2014)	2
65	Stabile et al (2014)	1
66	Talib et al (2015)	1
67	Talib et al (2011)	2
68	Trotta et al (2013)	2
69	van der Meijden et al (2003)	2
70	Ward et al (2009)	2
71	Waring et al (2016)	1
72	Wass & Vimarlund (2016)	2
73	West (2001)	1
74	Wong et al (2004)	1
75	Young (2002)	2
76	Zelman et al (2003)	1
77	Bucci et al (2016)	2

78	Schupfer & Schmucki (2003)	1

Record of Data Extraction

Key – Independent Variable Category			
Multi-factor			
	1 Multi-factor	**14**	Attribute - Gov & Structure
	2 Mulit-factor (enviro)	**15**	Attribute - L'ship/Mgmt
	3 Multi-factor (attribute)	**16**	Attribute - Culture
	4 Multi-factor (strategy)	**17**	Strategy - Planning
Single-factor		**18**	Strategy - Financial
	10 Enviro - Financial	**19**	Strategy - Quality Improvement
	11 Enviro - Demog/Geog	**20**	Strategy - Innovation
	12 Enviro - Regulation	**21**	Strategy - Human Resources
	13 Enviro - Reputation	**22**	Strategy - Learning

Key – Dependent Variable Category	
A	Accessibility
B	Effectiveness
C	Efficiency & Sustainability
D	Safety & Quality
E	Performance not specified

Table B-1: Record of Data Extraction: Year, Type, Journal Discipline

ID	Author	Year	Type	Journal/Pub	Discipline
1	Alkhenizan & Shaw	2011	Peer-reviewed research	Annals of Saudi Medicine	Medicine
2	Amato et al	2013	Peer-reviewed research	Epidemiologia E Prevenzione	Epidemiology
3	Andersen et al	2014	Peer-reviewed research	BMJ Open	Health
4	Baxter et al	2015	Peer-reviewed research	Health Policy	Health
5	Beauvais & Wells	2006	Peer-reviewed research	Hospital Topics	Health
6	Behrendt & Groene	2016	Peer-reviewed research	Health Policy	Health
7	Berger et al	2013	Peer-reviewed research	Patient Education and Counselling	Health
8	Black et al	2011	Peer-reviewed research	PLOS Med	Health
9	Boaz et al	2015	Peer-reviewed research	BMJ Open	Health
10	Braithwaite et al	2014	Peer-reviewed research	International Journal for Quality in Health Care	Health
11	Braithwaite et al.	2011	Peer-reviewed research	Health Care Analysis	Health
12	Brand et al	2012	Peer-reviewed research	International Journal for Quality in Health Care	Health

13	Brenner et al	2016	Peer-reviewed research	Journal of American Medical Informatics Association	Medical Informatics
14	Brubakk et al	2015	Peer-reviewed research	BMC Health Services Research	Health
15	Buntin et al	2011	Peer-reviewed research	Health Affairs	Health
16	Campanella et al	2016	Peer-reviewed research	BMC Health Services Research	Health
17	Carter et al	2016	Peer-reviewed research	BMC Health Services Research	Health
18	Chambers et al	2013	Grey Literature	Health Services and Delivery Research, NHS	Health
19	Chaudhry et al	2006	Peer-reviewed research	Annals of Internal Medicine	Medicine
20	Conry et al	2012	Peer-reviewed research	BMC Health Services Research	Health
21	Costa & Filho	2016	Peer-reviewed research	Production Planning and Control	Management
22	Crema & Verbano	2013	Peer-reviewed research	Therapeutics and Clinical Risk Management	Medicine
23	d'Andreamatteo et al	2015	Peer-reviewed research	Health Policy	Health
24	De Vos et al	2009	Peer-reviewed research	International Journal for Quality in Health Care	Health
25	Deblois & Lepanto	2016	Peer-reviewed research	International Journal of Health Care Quality Assurance	Health
26	DelliFraine et al	2010	Peer-reviewed research	Quality Management in Health Care	Health
27	Dijkstra et al	2006	Peer-reviewed research	BMC Health Services Research	Health
28	Eagar et al	2013	Non-peer reviewed research	Centre for Health Service Development, University of Wollongong	Health
29	Eijkenaar et al	2013	Peer-reviewed research	Health Policy	Health
30	Elkhuizen et al	2006	Peer-reviewed research	International Journal of Health Care Quality Assurance	Health
31	Emmert et al	2012	Peer-reviewed research	European Journal of Health Economics	Health
32	Evans et al	2015	Peer-reviewed research	BMC Health Services Research	Health
33	Flodgren et al	2011	Peer-reviewed research	Cochrane Database of Systematic Reviews	Health
34	Flodgren et al	2016	Peer-reviewed research	Cochrane Database of Systematic Reviews	Health
35	Flodgren et al	2011	Peer-reviewed research	Cochrane Database of Systematic Reviews	Health
36	Flodgren et al	2012	Peer-reviewed research	Cochrane Database of Systematic Reviews	Health
37	Fung et al	2008	Peer-reviewed research	Annals of Internal Medicine	Medicine
38	Greenfield & Braithwaite	2008	Peer-reviewed research	International Journal for Quality in Health Care	Health
39	Halm et al	2002	Peer-reviewed research	Annals of Internal Medicine	Medicine

40	Hayrinen et al	2008	Peer-reviewed research	International Journal of Medical Informatics	Medical Informatics
41	Hinchcliff et al	2012	Peer-reviewed research	BMJ Quality & Safety	Health
42	Hoff et al	2004	Peer-reviewed research	Medical Care Research and Review	Health
43	Hunt et al	2012	Peer-reviewed research	Reviews in Clinical Gerontology	Medicine
44	Hurst & Williams	2012	Grey Literature	Nuffield Trust	Health
45	Jack & Powers	2009	Peer-reviewed research	International Journal of Management Reviews	Management
46	Jones et al	2014	Peer-reviewed research	Annals of Internal Medicine	Medicine
47	Kanamori et al	2016	Peer-reviewed research	Tropical Medicine and Health	Medicine
48	Ketelaar et al	2011	Peer-reviewed research	Cochrane Database of Systematic Reviews	Health
49	Kondo et al	2016	Peer-reviewed research	Journal of General Internal Medicine	Medicine
50	Kuipers et al	2014	Peer-reviewed research	Public Administration	Public Administration
51	Länsisalmi et al	2006	Peer-reviewed research	Nursing Science Quarterly	Nursing
52	Lau et al	2010	Peer-reviewed research	Journal of American Medical Informatics Association	Medical Informatics
53	Lega et al	2013	Peer-reviewed research	Value in Health	Health
54	Leggat et al	2015	Peer-reviewed research	Public Money & Management	Public Administration
55	Lemire et al	2013	Peer-reviewed research	Journal of Health Organization and Management	Health
56	MacDavitt et al	2007	Peer-reviewed research	The Joint Commission Journal on Quality and Patient Safety	Health
57	Mannion et al	2016	Grey Literature	Health Services and Delivery Research, NHS	Health
58	Markovitz & Ryan	2017	Peer-reviewed research	Medical Care Research and Review	Medicine
59	Marshall et al	2000	Peer-reviewed research	Journal of the American Medical Association	Medicine
60	Mazzocato et al	2010	Peer-reviewed research	Quality and Safety in Health Care	Health
61	McKibben et al	2006	Peer-reviewed research	American Journal of Infection Control	Medicine
62	Millar et al	2013	Peer-reviewed research	The Milbank Quarterly	Health
63	Mitton et al	2007	Peer-reviewed research	The Milbank Quarterly	Health
64	Moraros et al	2016	Peer-reviewed research	International Journal for Quality in Health Care	Health
65	Nadeem et al	2013	Peer-reviewed research	The Milbank Quarterly	Health
66	Ng et al	2013	Peer-reviewed research	Hong Kong Medical Journal	Medicine

67	Nzinga et al	2013	Peer-reviewed research	Human Resources for Health	Human Resources in Health
68	Olisemeke et al	2014	Peer-reviewed research	Journal of Digital Imaging	Medicine
69	Oner et al	2016	Peer-reviewed research	Journal of Healthcare Finance	Health Finance
70	Ovretveit	2003	Grey Literature	WHO Regional Office for Europe's Health Evidence Network (HEN)	Health
71	Palmer et al	2014	Peer-reviewed research	Public Library of Science One	Science
72	Parand et al	2014	Peer-reviewed research	BMJ Open	Health
73	Parmelli et al	2011	Peer-reviewed research	Implementation Science	Health
74	Patterson et al	2010	Peer-reviewed grey literature	Health Technology Assessment	Health
75	Peterson et al	2006	Peer-reviewed research	Annals of Internal Medicine	Medicine
76	Poksinska	2010	Peer-reviewed research	Quality Management in Health Care	Health
77	Powell et al	2009	Grey Literature	NHS Quality Improvement Scotland	Health
78	Ranmuthugala et al	2011	Peer-reviewed research	BMC Health Services Research	Health
79	Rosenthal & Frank	2006	Peer-reviewed research	Medical Care Research and Review	Health
80	Rumbold et al	2014	Peer-reviewed	Health Economics	Health
81	Sarto & Veronesi	2016	Peer-reviewed research	BMC Health Services Research	Health
82	Scott	2009	Peer-reviewed	Internal Medicine Journal	Medicine
83	Scott et al	2003	Peer-reviewed research	Journal of Health Service Research and Policy	Health
84	Sheaff et al	2003	Grey Literature	NHS Service Delivery & Organisation Research & Development Programme	Health
85	Shekelle et al	2008	Grey Literature	Quest for Quality and Improve Performance, The Health Foundation	Health
86	Shen et al	2007	Peer-reviewed research	INQUIRY: The Journal of Health Care Organization, Provision, and Financing	Health Finance
87	Siourouni et al	2012	Peer-reviewed	Health Science Journal	Health
88	Taylor et al	2015	Peer-reviewed research	BMC Health Services Research	Health
89	Totten et al	2012	Grey Literature	Agency for Healthcare Research and Quality	Health
90	Van Herck et al	2010	Peer-reviewed research	BMC Health Services Research	Health
91	Vos et al	2011	Peer-reviewed research	Implementation Science	Health

92	Walker	2013	Peer-reviewed	Public Administration Review	Public Administration
93	Wardhani et al	2009	Peer-reviewed research	Health Policy	Health
94	Wensing et al	2006	Peer-reviewed	Implementation Science	Health
95	Witter et al	2012	Peer-reviewed research	Cochrane Database of Systematic Reviews	Health
96	Wong et al	2007	Peer-reviewed research	Journal of Nursing Management	Nursing
97	Yeager et al	2014	Peer-reviewed research	Health Care Management Review	Health
98	Yousefinezhadi et al	2015	Peer-reviewed research	Iranian Red Crescent Medical Journal	Medicine

Table B-2: Record of Data Extraction: Review method, review dates, included articles, quality review

ID	Author	Review Method	Dates	Included Articles	Quality Review
1	Alkhenizan & Shaw	Systematic	1980-2009	26	Yes, US Preventative Services Task Force Approach
2	Amato et al	Systematic	to 2012	47	Yes, AMSTAR
3	Andersen et al	Systematic Narrative Review	2000-2012	18	Yes, PRISMA
4	Baxter et al	Systematic	1982-2013	14	Yes, Lett et al's Critical Review Form
5	Beauvais & Wells	Systematic	1980-2005	16	No
6	Behrendt & Groene	Systematic	1980 - ? (2014/5?)	25	Yes, Hawker et al
7	Berger et al	Systematic	to 2013	25	Yes, GRADE
8	Black et al	Systematic Review of Reviews	1997-2007	53	Yes, CASP Sys Reviews
9	Boaz et al	Systematic (Part 2 of 3)	1990-2012	33	Yes, CASP and CEBMA
10	Braithwaite et al	Systematic	None	57	Yes, Hawker's critical appraisal tool
11	Braithwaite et al.	Systematic	1950-2007	2319	No
12	Brand et al	Systematic	1996-2010	59	Yes, ANHMRC guidelines plus critical appraisal
13	Brenner et al	Systematic	2001-2012	69	Yes, 10-point Methodological Quality Assessment
14	Brubakk et al	Systematic Review of Reviews	2006-2013	3	Yes, AMSTAR
15	Buntin et al	Systematised	2007-2010	154	No
16	Campanella et al	Systematic	1991-2014	27	Yes, GRADE

17	Carter et al	Systematic	2000-2015		14	Yes, GRADE
18	Chambers et al	Systematised realist synthesis	1968-2011	64 (DV org performance)		No
19	Chaudhry et al	Systematic	1995-2004		257	No
20	Conry et al	Systematic	2000-2010		20	Yes, GRADE
21	Costa & Filho	Systematised	2008-2014	23 (hospital)		No
22	Crema & Verbano	Systematic	Not reported		47	No
23	d'Andreamatteo et al	Comprehensive	to 2013		243	No
24	De Vos et al	Systematic	1994-2008		21	No
25	Deblois & Lepanto	Systematic Review of Reviews	1999-2015		7	Yes, AMSTAR
26	DelliFraine et al	Comprehensive	1999--2009		34	Yes, Slavin's criteria
27	Dijkstra et al	Systematic review and meta-analysis	1966-1998		53	Yes, EPOC checklist
28	Eagar et al	Systematised	Not reported	Not specified		No
29	Eijkenaar et al	Systematic Review of Reviews	2000-2011		22	Yes, Cochrane's tool for assessing risk of bias
30	Elkhuizen et al	Systematic	1989-2003		88	Yes, implied assessment of quality
31	Emmert et al	Systematic	2000-2010		9	Yes, Drummond et al (1996) checklist
32	Evans et al	Systematic	1990-2014		37	Yes, implied/informal assessment of quality
33	Flodgren et al	Systematic Review of Reviews	to 2012		4	Yes, AMSTAR
34	Flodgren et al	Systematic	to 2015		2	Yes, Cochrane's tool for assessing risk of bias
35	Flodgren et al	Systematic	to 2009		18	Yes, Cochrane's tool for assessing risk of bias
36	Flodgren et al	Systematic	to 2011		1	Yes, Cochrane EPOC
37	Fung et al	Systematic	1986-2006 (aggregated)		45	Yes, assessment method cannot be obtained
38	Greenfield & Braithwaite	Systematic	1950-2007		66	No
39	Halm et al	Systematic	1980-2000		135	Yes, various statistical quality assessments of results
40	Hayrinen et al	Systematic	1982-2004		89	No
41	Hinchcliff et al	Systematic Narrative Review	1950-2012		122	Yes, NHMRC guidelines
42	Hoff et al	Systematic	1990-2002		42	No
43	Hunt et al	Systematic	1993-2010		20	No

44	Hurst & Williams	Systematised	1988-2010	Not specified		No
45	Jack & Powers	Systematised	1986-2006		463	No
46	Jones et al	Systematic	2010-2013		236	No
47	Kanamori et al	Systematised narrative	1980-2015		15	No
48	Ketelaar et al	Systematic	to 2011		4	Yes, Cochrane Collaboration criteria and GRADE
49	Kondo et al	Systematic	to 2014		41	Yes, Ottawa Quality Assessment Scale
50	Kuipers et al	Systematised narrative	Not reported		133	No
51	Länsisalmi et al	Systematic	1994-2004		31	No
52	Lau et al	Meta-synthesis review of systematic reviews	1966-2008		50	Yes, selection of 'systematic reviews' with reported quality assessments
53	Lega et al	Systematic	Not reported		37	No
54	Leggat et al	Systematic	Not reported		41	No
55	Lemire et al	Systematic Narrative Review	1980-2010		114	No
56	MacDavitt et al	Systematic	1995-2007		20	No
57	Mannion et al	Systematic Narrative Review	1991-2012		66	No
58	Markovitz & Ryan	Systematic	2000-2015		58	No
59	Marshall et al	Systematic	1986-1999		21	No
60	Mazzocato et al	Systematised realist review	1998-2008		33	No
61	McKibben et al	Systematic	1995-? (2005?)		12	No
62	Millar et al	Systematic	1991-? (2012?)		122	No
63	Mitton et al	Systematic	1997-2005		81	Yes, tailored rating scale
64	Moraros et al	Systematic	Not reported		22	Yes, validated critical appraisal checklists
65	Nadeem et al	Systematic	2006-2012		24	No
66	Ng et al	Systematic	to 2011		26	No
67	Nzinga et al	Systematic	1980-2011		23	No
68	Olisemeke et al	Systematic	1995-2013		57	Yes, Cochrane EPOC
69	Oner et al	Systematic	1996-2016		81	No
70	Ovretveit	Systematised	Not reported	Not specified		No
71	Palmer et al	Systematic	1980-2012		65	Yes, not specified scoring system
72	Parand et al	Systematic	1983-2010		19	Yes, Kmet's quality assessment tool

73	Parmelli et al	Systematic	to 2009		2	Yes, Cochrane
74	Patterson et al	Systematic	Not reported		99	No
75	Peterson et al	Systematic	1980-2005		17	Yes, Downs and Black checklist for methodologic quality
76	Poksinska	Systematised	Not reported	around 30		No
77	Powell et al	Systematised Narrative Review	Not reported	Not specified		No
78	Ranmuthugala et al	Systematic	1990-2009		33	No
79	Rosenthal & Frank	Systematised	Not reported		7	No
80	Rumbold et al	Systematised	Not reported	Not specified		No
81	Sarto & Veronesi	Systematic	to 2015		19	No
82	Scott	Systematised	1985-2008	Not specified		No
83	Scott et al	Systematised qualitative comprehensive review	Not reported		19	No
84	Sheaff et al	Systematised scoping review	Not reported		1568	No
85	Shekelle et al	Systematic	1999-2006		50	No
86	Shen et al	Systematic meta-analytic review	1990-2004		40	No
87	Siourouni et al	Systematic	1998-2008		12	No
88	Taylor et al	Systematic	2000-2014		19	Yes, Hawker risk of bias assessment
89	Totten et al	Systematic	1980-2011		198	Yes, AHRQ Guide
90	Van Herck et al	Systematic	2004-2009		128	Yes, tailored rating scale
91	Vos et al	Systematised	1998-2009		10	No
92	Walker	Systematised	Not reported		25	No
93	Wardhani et al	Systematised	1992-2006		14	Yes, implied/informal assessment of quality
94	Wensing et al	Systematised review of reviews	1995-2003		36	Yes, quality scores used (not specified)
95	Witter et al	Systematic	1948-2011		9	Yes, Cochrane EPOC
96	Wong et al	Systematic	2005-2012		13	Yes, tailored rating scale
97	Yeager et al	Systematic	Not reported		20	No
98	Yousefinezhadi et al	Systematic	to 2013		7	Yes, not specified scoring system

Table B-3: Record of Data Extraction: Setting, Sector, Independent & Dependent Variable, Descriptive Code and Linked Factors

ID	Author	Setting	Sector	IV Category	Descriptive Code	DV	Linked Factors
1	Alkhenizan & Shaw	Hospital	Mixed/unspecified	12	Accreditation	B, C, D	15, 21 (weak)
2	Amato et al	Hospital	Mixed/unspecified	11	Volume of cases	D	No
3	Andersen et al	Hospital	Mixed/unspecified	19	Lean	E	1 (strong)
4	Baxter et al	Hospital	Mixed/unspecified	10	Funding model	E	3 (strong)
5	Beauvais & Wells	Health predominantly hospital	Mixed/unspecified	18	Financial resource	D	No
6	Behrendt & Groene	Hospital	Mixed/unspecified	13	Public reporting	A, B, D	No
7	Berger et al	Health including 16 hospitals	Mixed/unspecified	13	Public reporting	D	No
8	Black et al	Health including hospitals	Mixed/unspecified	20	eHealth	B, C, D	No
9	Boaz et al	Health including hospitals	Mixed/unspecified	20	Research participation	D	1 (weak)
10	Braithwaite et al	Health including hospitals	Mixed/unspecified	19	Implementation Approaches	D	No
11	Braithwaite et al.	Hospital	Public	2	Privatisation and corporatisation	E	3 (moderate)
12	Brand et al	Hospital	Mixed/unspecified	1	Hospital characteristics	E	1 (strong)
13	Brenner et al	Health including hospitals	Mixed/unspecified	20	Health information technology	D	No
14	Brubakk et al	Hospital	Mixed/unspecified	12	Accreditation	D	No
15	Buntin et al	Health including hospitals	Mixed/unspecified	20	Health information technology	A, B, C, D	15 (moderate)
16	Campanella et al	Health predominantly hospital	Mixed/unspecified	13	Public reporting	D	No
17	Carter et al	Hospital	Mixed/unspecified	2	Primary care reform	C	No
18	Chambers et al	Hospital	Mixed/unspecified	14	Boards	C, D	1 (strong)
19	Chaudhry et al	Health predominantly hospital	Mixed/unspecified	20	Health information technology	C, D	No
20	Conry et al	Hospital	Mixed/unspecified	19	Quality improvement interventions	A, B, C, D	3, 4 (weak)

21	Costa & Filho	Health including hospitals	Mixed/unspecified	19	Lean	A, B, C, D	No
22	Crema & Verbano	Hospital	Mixed/unspecified	19	Quality improvement strategies and management interventions	A, B, C, D	3, 4 (moderate)
23	d'Andreamatteo et al	Health predominantly hospital	Mixed/unspecified	19	Lean	A, B, C, D	3, 4 (moderate)
24	De Vos et al	Hospital	Mixed/unspecified	19	Quality Indicators	C, D	3 (moderate)
25	Deblois & Lepanto	Acute care, predominantly hospital	Mixed/unspecified	19	Lean	C, D	3 (moderate)
26	DelliFraine et al	Health predominantly hospital	Mixed/unspecified	19	Lean & Six Sigma	A, B, C, D	No
27	Dijkstra et al	Hospital	Mixed/unspecified	1	Hospital characteristics	D	3, 4 (strong)
28	Eagar et al	Health predominantly hospital	Mixed/unspecified	10	Incentive systems for quality and safety	D	4 (moderate)
29	Eijkenaar et al	Health including hospitals	Mixed/unspecified	10	Pay for performance	A, B, C, D	3 (moderate)
30	Elkhuizen et al	Health predominantly hospital	Mixed/unspecified	19	Business process redesign	B, C, D	No
31	Emmert et al	Health including hospitals	Mixed/unspecified	10	Pay for performance	C, D	No
32	Evans et al	Health including hospitals	Mixed/unspecified	3	Intellectual capacity	D	3, 4 (moderate)
33	Flodgren et al	Health including hospitals	Mixed/unspecified	10	Financial incentives	C, D	No
34	Flodgren et al	Hospital	Public	12	Inspection	B, C, D	No
35	Flodgren et al	Health including hospitals	Mixed/unspecified	15	Local opinion leaders	D	No
36	Flodgren et al	Hospital	Mixed/unspecified	3	Organisational infrastructure	C, D	No
37	Fung et al	Health predominantly hospital	Mixed/unspecified	13	Public reporting	B, D	19 (moderate)
38	Greenfield & Braithwaite	Hospital	Mixed/unspecified	12	Accreditation	B, C, D	No
39	Halm et al	Health predominantly hospital	Mixed/unspecified	11	Volume of cases	D	No
40	Hayrinen et al	Health including hospitals	Mixed/unspecified	20	Electronic health records	B, C, D	No

41	Hinchcliff et al	Health predominantly hospital	Mixed/unspecified	12	Accreditation	D, E	3, 4 (moderate)
42	Hoff et al	Health predominantly hospital	Mixed/unspecified	1	Organisational factors	D	1 (strong)
43	Hunt et al	Health predominantly hospital	Mixed/unspecified	16	Culture	C, D	21 (strong)
44	Hurst & Williams	Health including hospitals	Mixed/unspecified	10	Efficiency	C	1 (moderate)
45	Jack & Powers	Health including hospitals	Mixed/unspecified	11	Demand and capacity	C, D	3 (moderate)
46	Jones et al	Health including hospitals	Mixed/unspecified	20	Information technology	B, C, D	No
47	Kanamori et al	Health including hospitals	Mixed/unspecified	19	5S	A, C, D	No
48	Ketelaar et al	Health predominantly hospital	Mixed/unspecified	13	Public reporting	E	No
49	Kondo et al	Health including hospitals	Mixed/unspecified	10	Pay for performance	B, D	1 (strong)
50	Kuipers et al	Public Sector including hospitals	Public	19	Change management	E	1 (strong)
51	Länsisalmi et al	Healthcare including hospital	Mixed/unspecified	20	Innovation	E	1 (moderate)
52	Lau et al	Healthcare including hospital	Mixed/unspecified	20	Health information technology	A, B, C, D	No
53	Lega et al	Health predominantly hospital	Mixed/unspecified	15	Management	E	3 (moderate)
54	Leggat et al	Hospital	Mixed/unspecified	19	Process Redesign	E	No
55	Lemire et al	Health including hospitals	Public	19	Dissemination of performance information and CI	E	3, 4 (strong)
56	MacDavitt et al	Health predominantly hospital	Mixed/unspecified	16	Organisational climate	B, D	3 (moderate)
57	Mannion et al	Hospital	Mixed/unspecified	14	Boards	D	No
58	Markovitz & Ryan	Health predominantly hospital	Mixed/unspecified	10	Pay for performance	C, D	1 (strong)
59	Marshall et al	Health predominantly hospital	Mixed/unspecified	13	Public reporting	A, B, C, D	No

60	Mazzocato et al	Health predominantly hospital	Mixed/unspecified	19	Lean	E	1 (strong)
61	McKibben et al	Health including hospitals	Mixed/unspecified	13	Public reporting	D	No
62	Millar et al	Hospital	Mixed/unspecified	14	Boards	E	No
63	Mitton et al	Health including hospitals	Mixed/unspecified	22	Knowledge transfer	E	No
64	Moraros et al	Health predominantly hospital	Mixed/unspecified	19	Lean	A, B, C, D	No
65	Nadeem et al	Health including hospitals	Mixed/unspecified	19	Quality improvement collaboratives	B, C, D	3, 4 (moderate)
66	Ng et al	Hospital	Public	12	Accreditation	D	1 (strong)
67	Nzinga et al	Hospital	Mixed/unspecified	15	Mid-level managers	E	No
68	Olisemeke et al	Hospital radiology	Mixed/unspecified	4	Service delivery initiatives	A, C	No
69	Oner et al	Hospital	Mixed/unspecified	1	Organisational and Environmental Factors	C	1 (strong)
70	Ovretveit	Hospital	Mixed/unspecified	4	Strategies and approaches for quality and safety	E	No
71	Palmer et al	Hospital	Mixed/unspecified	10	Activity-based funding model	C, D	No
72	Parand et al	Hospital	Mixed/unspecified	15	Hospital managers	E	No
73	Parmelli et al	Health including hospitals	Mixed/unspecified	16	Organisational culture	B, D	No
74	Patterson et al	Health including hospitals	Mixed/unspecified	21	Human resource management practices	A, B, C, D	No
75	Peterson et al	Health including hospitals	Mixed/unspecified	10	P4P	D	No
76	Poksinska	Hospital	Mixed/unspecified	19	Lean	A, B, C, D	No
77	Powell et al	Health including hospitals	Mixed/unspecified	19	Quality improvement models	E	4 (moderate)
78	Ranmuthugala et al	Health including hospitals	Mixed/unspecified	19	Communities of practice	C, D	No
79	Rosenthal & Frank	Health including hospitals	Mixed/unspecified	10	Financial incentives	C, D	No
80	Rumbold et al	Hospital	Mixed/unspecified	1	Determinants	C	1 (weak)
81	Sarto & Veronesi	Hospital	Mixed/unspecified	14	Clinical governance	C, D	No
82	Scott	Health including hospitals	Mixed/unspecified	4	Strategies and approaches for quality and safety	D	4 (weak)
83	Scott et al	Health including hospitals	Mixed/unspecified	16	Organisational culture	A, B, C, D	4 (moderate)

84	Sheaff et al	Health predominantly hospital	Mixed/unspecified	1	Organisational factors	E	1 (strong)
85	Shekelle et al	Health including hospitals	Mixed/unspecified	13	Public reporting	C, D	No
86	Shen et al	Hospital	Mixed/unspecified	3	Hospital ownership	C	No
87	Siourouni et al	Hospital	Mixed/unspecified	16	Organisational culture	E	No
88	Taylor et al	Hospital	Mixed/unspecified	1	Organisational factors	E	3, 4 (strong)
89	Totten et al	Health including hospitals	Mixed/unspecified	13	Public reporting	C, D	1 (weak)
90	Van Herck et al	Health including hospitals	Mixed/unspecified	10	Pay for performance	A, B, C, D	2, 3 (strong)
91	Vos et al	Hospital	Mixed/unspecified	19	Organisation-wide process-oriented organisation of care	A, B, C, D	3, 4 (moderate)
92	Walker	Public Sector including hospitals	Public	1	Miles & Snow	E	1 (strong)
93	Wardhani et al	Hospital	Mixed/unspecified	19	Quality management systems	E	3 (strong)
94	Wensing et al	Health predominantly hospital	Mixed/unspecified	4	Organisational interventions	B, C, D	No
95	Witter et al	Health including hospitals	Mixed/unspecified	10	Pay for performance	A, B, C, D	No
96	Wong et al	Health predominantly hospital	Mixed/unspecified	15	Nursing leadership	B, D	21 (moderate)
97	Yeager et al	Health including hospitals	Mixed/unspecified	2	Environment	C, D	1 (moderate)
98	Yousefinezhadi et al	Hospital	Mixed/unspecified	19	ISO 9001 & EFQM model	B, C, D	No

Quality Appraisal Method

Quality Appraisal Tool

Adapted from:

Black AD, Car J, Pagliari C, Anandan C, Cresswell K, Bokun T, McKinstry B, Procter R, Majeed A, and Sheikh A (2011). The Impact of eHealth on the Quality and Safety of Health Care: A Systematic Overview. Public Library of Science 8:1, E1000387.

Which was in itself adapted from:

Critical Appraisal Skills Programme (CASP), Public Health Resource Unit, Institute of Health Science, Oxford.

Oxman AD, Cook DJ, Guyatt GH (1994). Users' guides to the medical literature. VI. How to use an overview. JAMA 272: 1367-1371.

Summary of adaptations from Black (2011)

Specific content:

- PICO removed
- Question 2 removed (about 'technology')
- Question 15 removed (risk benefit etc) – irrelevant for review articles

Method:

- Broadened for better applicability to qual-type studies as well as quant (i.e. quality criteria for narrative synthesis as well as meta-analysis).

Language/terminology:

- Some reverted back to CASP original (more general).
- Focus on precision of language.

- Q13 – was extreme (difficult to refute: were *all* relevant outcomes considered) and so was toned down.

Tool

Intended use and context:

- Intended to be used for an umbrella review
- General rather than specific subject area (for organisation/ public service research)
- Broad mix of quant and qual studies (i.e. catering for meta-analyses and synthetic narrative reviews etc.)

Table B-4: Quality Appraisal Tool

REVIEW FOCUS	Clearly (+2)	Somewhat (+1)	No or can't tell (0)
1. Did the review address a clearly focussed research aim? Consider the **specificity** of the aim, and whether discrete research questions were identified. Additionally, consider whether the authors reported **inclusion criteria that corresponded** with the research question or issue. Was there **consistency** within the included studies with regards to: • Participants or population • Settings • Intervention • Domain • Comparisons made			
2. Did the authors include appropriate papers? Consider whether the authors reported what study designs were **eligible** and the reasons for doing so. Additionally, consider whether the studies had: • Outcomes **relevant** to review objectives • A design and methods appropriate for addressing the review objective.			

VALIDITY OF REVIEW RESULTS	Clearly (+2)	Somewhat (+1)	No or can't tell (0)
3. Do you think the important, relevant studies were included? Consider the appropriateness and coverage of the search terms and databases used. Additionally, consider whether unpublished research was searched, if relevant references were reviewed, and whether there was: • Manual searching of key journals or sources • Inclusion of non-English articles • Personal contact with experts • Internet or grey literature searches. Has the review been update if much time has passed since the searches and publication?			
4. Did the review's authors do enough to assess the quality of the included studies? Consider whether the authors used a critical appraisal tool, characterised quality by assigning level of evidence by study type only, or limited inclusion to rigorous designs etc.			
5. Were the studies described in adequate detail? Consider descriptions of design, research settings, methods and results.			
6. Are the results reported in a clear and meaningful way? Consider how the results are structured and how are they presented (summarisation, reproduction or interpretation, neither).			

7. If the results of included studies have been synthesised or combined, was it reasonable to do so? Was the method for combination (i.e. meta-analysis) or synthesis (i.e. narrative synthesis) robust and systematic? Consider if there was substantial heterogeneity amongst studies in terms of settings and/or conditions, quality, comparisons made etc. For meta-analysis consider in addition the choice of effects model and summary measures, and the results of interaction or statistical heterogeneity. Finally, consider whether the reasons for any variations in impact are analysed and/or discussed. For syntheses, consider whether the approach was founded on a sound theoretical basis, and how issues of context were treated. If results were not combined or synthesised, was this choice adequately justified?			
8. Did the review demonstrate awareness of its own limitations? Consider whether the review noted: • Limitations of included studies • Limitations of the review itself • Findings in light of prior research			

RESULTS	Clearly (+2)	Somewhat (+1)	No or can't tell (0)
9. Does the review present an overall result? Consider: • If you are clear about the reviews 'bottom line' results • What these are (numerically or narratively) • How were the results expressed (conclusiveness/doubt)			
10. How precise are the results? Are the results presented with confidence intervals if expressed numerically? Is there a clear narrative structure for assigning levels of evidence?			

APPLICABILTY	Clearly (+2)	Somewhat (+1)	No or can't tell (0)
11. Do the authors report next steps for researchers, and research and/or practice implications? Are these appropriate based on their findings and other pertinent factors?			
12. Have the authors commented on the generalisability or transferability of their results, beyond the confines of the setting in which the work was originally conducted? Consider whether the authors noted the generalisability of their results and any heterogeneity. Additionally, consider whether enough detail was presented on contextual factors, or negative findings.			
13. Were relevant outcomes adequately considered? Depending on the reviews objective, were all outcomes relevant to answering that question considered?			

Record of Quality Appraisal

Quality Appraisal

CASP-derived tool adapted from Black (2011)

Maximum score per article is 26. Each article is scored against 13 criteria from 0 to 2: 0 (no/can't tell), 1 (somewhat) or 2 (clearly).

Author	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Total
Alkhenizan & Shaw (2011)	2	2	1	1	2	2	1	0	1	1	0	1	1	15
Amato et al (2013)	2	2	2	2	2	2	2	2	2	2	1	1	1	23
Andersen, Rovik & Ingebrgsten (2014)	2	1	1	1	2	2	2	1	2	1	2	1	2	20
Baxter et al (2015)	2	2	2	2	2	2	1	1	2	2	2	1	2	23
Beauvais & Wells (2006)	1	1	1	0	1	1	1	1	2	1	1	0	1	12
Behrendt & Groene (2016)	2	1	1	2	1	2	1	2	2	1	2	2	2	21
Berger et al (2013)	1	1	2	2	2	2	1	1	2	1	2	1	1	19
Black et al (2011)	2	2	2	2	0	1	1	1	2	1	1	1	1	17
Boaz et al (2015)	2	2	2	2	1	2	2	2	1	1	1	1	1	20
Braithwaite, Marks & Taylor (2014)	1	2	1	2	0	1	1	1	1	1	1	0	1	13
Braithwaite, Travaglia & Corbett (2011)	1	2	1	0	0	1	1	1	1	1	0	1	1	11
Brand et al (2012)	2	1	2	2	1	2	2	2	2	1	1	2	1	21
Brenner et al (2016)	2	2	2	2	2	2	2	2	1	2	2	1	2	24
Brubakk et al (2015)	2	2	2	2	2	2	2	1	1	1	0	0	1	18
Buntin et al (2011)	1	1	1	0	1	1	1	2	1	1	0	1	1	12
Campanella et al (2016)	1	2	2	2	2	2	2	2	1	1	2	0	1	20
Carter et al (2016)	1	2	1	2	2	2	2	1	1	1	1	0	1	17
Chambers et al (2013)	2	2	2	0	2	1	1	1	2	1	2	1	2	19
Chaudhry et al (2006)	1	2	2	0	2	2	1	2	1	1	2	2	1	19
Conry et al (2012)	2	2	1	2	2	2	1	2	1	1	2	0	1	19
Costa & Filho (2016)	1	1	2	0	0	1	1	0	1	1	1	0	1	10
Crema & Verbano (2013)	2	2	1	0	2	2	1	0	2	1	2	0	1	16
D'Andreamatteo et al (2015)	1	2	1	0	1	1	1	2	1	0	2	2	1	15

De Vos et al (2009)	1	2	1	0	1	2	1	2	1	1	0	0	1	13
Deblois & Lepanto (2016)	2	2	2	2	2	2	1	1	1	1	2	0	1	19
DelliFraine et al (2010)	1	1	2	2	2	2	2	1	2	2	1	1	2	21
Dijkstra et al (2006)	2	2	2	2	2	2	1	2	1	2	1	0	1	20
Eagar et al (2013)	2	2	2	0	2	2	1	1	2	1	2	0	2	19
Eijkenaar et al (2013)	2	2	1	2	2	2	1	2	2	1	2	2	2	23
Elkhuizen et al (2006)	2	2	2	1	2	1	1	1	1	0	0	0	1	14
Emmert et al (2012)	1	2	1	2	2	1	1	2	2	1	2	1	1	19
Evans, Brown and Baker (2015)	2	2	1	1	1	1	1	1	1	1	1	1	1	15
Flodgren et al (2011)	2	2	1	2	2	1	2	2	2	2	2	2	2	24
Flodgren, Goncalves-Bradley & Pomey (2016)	2	2	1	2	2	2	2	2	2	2	2	2	2	25
Flodgren et al (2011)	2	2	1	2	2	2	2	2	2	2	2	2	2	25
Flodgren et al (2012)	1	2	1	2	2	1	2	2	2	2	2	2	1	22
Fung et al (2008)	2	2	1	2	1	1	1	1	2	1	1	1	1	17
Greenfield & Braithwaite (2008)	1	2	2	0	0	2	1	0	2	1	0	0	1	12
Halm, Lee & Chassin (2002)	2	2	1	2	2	2	2	1	2	1	1	1	1	20
Hayrinen, Saranto & Nykanen (2008)	2	2	1	0	2	2	1	2	1	0	1	0	1	15
Hinchcliff et al (2012)	2	2	2	2	2	2	2	1	1	1	2	0	1	20
Hoff et al (2004)	1	1	1	0	2	2	2	2	2	1	2	1	1	18
Hunt et al (2012)	1	1	1	0	2	2	1	1	1	0	0	0	1	11
Jack & Powers (2009)	1	1	1	0	1	1	1	1	1	1	2	0	1	12
Jones et al (2014)	1	1	1	0	1	2	1	0	2	1	1	1	1	13
Kanamori, Shibanuma & Jimba (2016)	1	1	2	0	2	2	1	1	1	0	1	0	1	13
Ketelaar et al (2011)	2	2	1	2	2	2	2	2	2	2	2	2	2	25
Kondo et al (2016)	1	2	2	2	2	1	2	2	2	1	2	0	1	20
Kuipers et al (2014)	1	1	1	0	2	1	0	1	2	0	2	0	1	12
Länsisalmi et al (2006)	1	1	0	0	1	0	0	1	2	1	2	0	1	10
Lau et al (2010)	2	2	2	2	1	2	2	2	2	2	1	0	1	21

Lega, Prenestini & Spurgeon (2013)	0	0	1	0	0	0	0	1	1	1	2	0	1	7
Leggat et al (2015)	1	1	1	1	1	1	1	0	2	1	1	0	1	12
Lemire et al (2013)	1	2	2	0	1	1	2	1	2	1	1	1	1	16
MacDavitt, Chou & Stone (2007)	1	1	1	0	2	2	1	1	2	1	2	0	1	15
Mannion et al (2016)	2	2	1	0	1	2	1	1	2	1	1	1	1	16
Markovitz & Ryan (2017)	2	2	1	0	2	2	1	2	2	1	2	2	1	20
Marshall et al (2000)	1	1	1	0	1	2	1	1	1	1	1	0	1	12
Mazzocato et al (2010)	2	2	1	0	2	2	2	2	2	1	2	1	1	20
McKibben et al (2006)	2	2	1	0	1	1	0	1	1	1	1	1	1	13
Millar et al (2013)	1	1	1	0	2	2	2	2	2	1	2	1	1	18
Mitton et al (2007)	2	2	2	2	2	2	1	2	2	2	2	2	2	25
Moraros et al (2016)	2	2	2	2	2	2	2	2	2	2	1	0	1	22
Nadeem et al (2013)	1	2	1	0	2	2	1	1	2	1	2	0	1	16
Ng et al (2013)	1	2	1	0	2	2	1	2	2	1	2	2	1	19
Oner et al (2016)	2	2	2	0	2	2	2	0	2	2	2	1	1	20
Nzinga, Mbaabu & English (2013	1	1	1	0	0	1	0	0	2	1	1	0	1	9
Ovretveit (2003)	2	1	1	0	0	1	1	1	2	1	2	0	1	13
Palmer et al (2014)	1	2	2	1	2	2	2	2	2	2	2	0	1	21
Parand et al (2014)	2	2	1	2	2	2	2	2	2	2	2	2	2	25
Parmelli et al (2006)	2	2	2	2	2	2	2	1	2	1	1	2	1	22
Patterson et al (2010)	2	2	2	0	2	2	2	2	2	2	2	2	2	24
Poksinska (2010)	1	2	1	0	0	1	0	0	2	0	1	0	1	9
Ranmuthugala et al (2011)	2	2	1	0	2	2	2	2	2	1	1	0	1	18
Rosenthal & Frank (2006)	0	1	1	0	0	1	0	0	1	1	1	1	1	8
Rumbold et al (2014)	2	2	2	0	0	1	1	2	2	2	2	0	1	17
Sarto & Veronesi (2016)	2	2	1	0	2	2	2	0	2	2	1	2	1	19
Scott (2009)	1	1	1	0	0	2	1	1	2	1	1	1	1	13
Scott et al (2003)	1	1	1	0	2	2	1	1	2	1	2	0	1	15
Sheaff et al (2003)	2	2	1	0	1	1	1	2	2	2	2	1	2	19
Shekelle et al (2008)	0	1	2	0	2	2	1	2	2	1	1	1	1	16
Shen et al (2007)	1	2	1	0	1	2	2	1	2	2	1	1	1	17

Siourouni et al (2012)	1	1	1	0	2	2	0	2	2	1	0	0	1	13
Taylor et al (2015)	2	2	1	2	2	2	2	2	2	2	1	1	1	22
Totten et al (2012)	2	2	2	2	1	2	2	2	2	1	2	1	2	23
Van Herck et al (2010)	2	2	1	2	2	2	2	2	1	1	1	1	1	20
Vos et al (2011)	1	2	1	0	2	2	1	2	2	1	1	1	1	17
Walker (2013)	1	1	0	0	2	2	1	0	2	1	2	1	1	14
Wardhani et al (2009)	1	2	1	1	2	2	1	0	1	1	1	2	1	16
Wensing et al (2006)	1	2	1	1	1	2	1	1	2	1	1	0	1	15
Witter et al (2012)	2	2	2	2	2	2	2	2	2	2	2	2	2	26
Wong & Cummings (2007)	1	2	2	1	2	2	1	2	2	1	2	2	1	21
Yeager et al (2014)	2	2	2	0	2	2	1	1	1	1	2	0	1	17
Yousefinezhadi et al (2015)	1	1	1	1	2	2	1	1	2	1	1	0	1	15
Olisemeke et al (2014)	2	2	2	2	2	1	2	2	2	2	2	1	1	23
Hurst & Williams (2012)	1	1	1	0	0	1	0	1	2	1	2	0	1	11
Petersen et al (2006)	1	2	1	2	0	1	1	1	2	2	2	2	1	18
Powell, Rushmer & Davies (2009)	1	0	1	0	0	0	1	0	2	1	1	1	2	10
Average	1.45	1.65	1.33	0.87	1.45	1.63	1.26	1.29	1.68	1.17	1.4	0.79	1.18	17.16162

Record of Analysis

Summary of evidence supporting explanations for hospital performance

Characteristics of the evidence

Volume				
	N	Low (-)	Moderate (+)	High (++)
Multi-factor				
Multi-factor	8			x
Enviro	3		x	
Attribute	3		x	
Strategy	4		x	
Environment				
Funding	13			x
Demog	3		x	
Reg	6			x
Rep	9			x
Attribute				
Gov	4		x	
Leader	5			x
Culture	5			x
Strategy				
Financial	1	x		
QI	23			x
Innovation	9			x
HR	1	x		
Knowledge	1	x		

Rule	**Reviews (N)**
Poor (-)	0-2
Moderate (+)	3-4
Good (++)	5+

Consistency (within category)												
	N	Homogeneity of aims/focus			Consistency of evidence/conclusion (mod-high homogeneity only)				Low (-)	Mod (+)	High (++)	
		Low	Mod	High	N/A (low h.)	Positive effect	Negative/ Nil effect	Insufficient evidence/ ambiguous results				
Multi-factor												
Multi-factor	8	8			8				x			
Enviro	3	3			3				x			
Attribute	3	3			3				x			
Strategy	4	4			4				x			
Environment												
Funding	13	1	5	7		1	1	10			x	
Demography	3			3		3					x	
Reg	6			6		1		5			x	
Rep	9			9		2		7			x	
Attribute												
Gov	4	1	3			1		3		x		
Leader	5	5			5				x			
Culture	5	1	4			2		3		x		
Strategy												
Financial	1								N/A			
QI	23	9	14			2		21		x		
Innovation	9	2	7			2	1	5	x			
HR	1								N/A			
Knowledge	1								N/A			

Rule

Where homogeneity is low, overall consistency must be scored low.
Where homogeneity is predominantly moderate (at least 50% in moderate to high homogeneity), consistency is scored low if below 50% result in same consistency column, or moderate for above 50% in same consistency column.

Where homogeneity is predominantly high (at least 50% scored high homogeneity) consistency is scored low if below 35% result in same consistency column, or moderate for above 35-70% in same consistency column, and high above 70% in the same consistency column.

Relevance

	N	H	HP	H/PS Inc	% H+HP	Low (-)	Moderate (+)	High (++)
Multi-factor								
Multi-factor	8	5	2	1	88%			x
Enviro	3	2		1	67%		x	
Attribute	3	2		1	67%		x	
Strategy	4	2	1	1	75%			x
Environment								
Funding	13	2	2	9	31%	x		
Demog	3	1	1	1	67%		x	
Reg	6	5	1		100%			x
Rep	9	1	4	4	56%		x	
Attribute								
Gov	4	4			100%			x
Leader	5	2	2	1	80%			x
Culture	5	1	2	2	60%		x	
Strategy								
Financial	1		1		100%			x
QI	23	9	6	8	65%		x	
Innovation	9		1	8	11%	x		
HR	1			1	0%	x		
Knowledge	1			1	0%	x		

Rule

Poor (-)	H+HP 0-50%
Moderate (+)	H+HP 50-74%
Good (++)	H+HP 75% +

Quality							
	N	**Range**	**Mean**	**Median**	Low (-)	Moderate (+)	High (++)
Multi-factor							
Multi-factor	8	14 to 22	19	20		x	
Enviro	3	11 to 17	15	17		x	
Attribute	3	15 to 22	18	17		x	
Strategy	4	13 to 23	16	14		x	
Environment							
Funding	13	8 to 26	19	20		x	
Demog	3	12 to 23	18	20		x	
Reg	6	12 to 25	18	19		x	
Rep	9	12 to 25	18	19		x	
Attribute							
Gov	4	16 to 19	18	19		x	
Leader	5	7 to 25	14	21		x	
Culture	5	11 to 22	15	15		x	
Strategy							
Financial	1	12 to 12	12	12	x		
QI	23	9 to 21	15	16		x	
Innovation	9	10 to 24	17	17		x	
HR	1	24 to 24	24	24			x
Knowledge	1	25 to 25	25	25			x

Rule	**Mean score**
Poor (-)	0-13
Fair (+)	14-20
Good (++)	21-26

Summary of evidence supporting explanations for hospital performance

Evidence for influence on hospital performance

Accessibility (A)

	N	**Performance effect**						
Multi-factor		A (n)	Article ID	A (++ mod pos)	A (+ weak pos)	A (- weak neg)	A (-- mod neg)	A (-/+ none)	Tally
Multi-factor	8	0							
Enviro	3	0							
Attribute	3	0							
Strategy	4	1	**68**			1			weak pos
Environment									
Funding	13	3	**29**, **90**, **95**			1		2	none
Demography	3	0							
Reg	6	0							
Rep	9	2	**6, 59**			2			weak pos
Attribute									
Gov	4	0							
Leader	5	0							
Culture	5	1							
Strategy									
Financial	1	0							
QI	23	9	**20, 21**, **22**, **23**, **26**, **47**, **64**, **76**, **91**			1		8	none
Innovation	9	2	**15**, **52**		1			1	none
HR	1	1	**74**					1	none
Knowledge	1	0							
Total		19							

Effectiveness (B)

	N	Performance effect							
Multi-factor		B (n)	Article ID	B (++ mod pos)	B (+ weak pos)	B (- weak neg)	B (-- mod neg)	B (-/+ none)	Tally
Multi-factor	8	0							
Enviro	3	0							
Attribute	3	0							
Strategy	4	1	**94**			1			weak pos
Environment									
Funding	13	4	**29**, **49, 90**, **95**			1		3	none
Demog	3	0							
Reg	6	3	**1**, **34**, **38**		1			2	none
Rep	9	3	**6**, **37**, **59**			2		1	weak pos
Attribute									
Gov	4	0							
Leader	5	1	**96**			1			weak pos
Culture	5	3	**56**, **73**, **83**			2		1	weak pos
Strategy									
Financial	1	0							
QI	23	11	**20**, **21**, **22, 23**, **26**, **30**, **64**, **65, 76**, **91**, **98**			2		9	none
Innovation	9	5	**8, 15**, **40**, **46**, **52**		2	1		2	weak pos
HR	1	1	**74**			1			weak pos
Knowledge	1	0							

Efficiency (C)

	N	Performance effect							
Multi-factor		C (n)	Article ID	C (++ mod pos)	C (+ weak pos)	C (- weak neg)	C (-- mod neg)	C (-/+ none/mixed)	Tally
Multi-factor	8	2	**69**, **80**			1		1	none
Enviro	3	2	**17**, **97**			2			weak pos

Attribute	3	2	**36**, **86**			1		1	none
Strategy	4	2	**68, 94**			2			weak pos
Environment									
Funding	13	9	**29**, **31**, **33**, **44**, **58**, **71**, **79, 90, 95**			3		6	none
Demography	3	1	**45**			1			weak pos
Reg	6	3	**1**, **34**, **38**	1				2	none
Rep	9	3	**59**, **85**, **89**			2		1	weak pos
Attribute									
Gov	4	2	**18**, **81**			2			weak pos
Leader	5	0							
Culture	5	2	**43**, **83**			2			weak pos
Strategy									
Financial	1	0							
QI	23	15	**20**, **21**, **22**, **23, 24**, **25, 26**, **30**, **47**, **64**, **65, 76**, **78**, **91**, **98**			3		12	none
Innovation	9	6	**8, 15**, **19**, **40**, **46**, **52**	2		1		3	none
HR	1	1	**74**			1			weak pos
Knowledge	1	0							

Safety & Quality (D)

	N	**Performance effect**							
Multi-factor		D (n)	Article ID	D (++ mod pos)	D (+ weak pos)	D (- weak neg)	D (-- mod neg)	D (-/+ none)	Tally
Multi-factor	8	2	**27**, **42**		1			1	none
Enviro	3	1	**97**		1				weak pos
Attribute	3	2	**32, 36**					2	none
Strategy	4	2	**82, 94**		1			1	none
Environment									

Funding	13	11	**28, 29**, **31**, **33**, **49**, **58**, **71**, **75, 79**, **90**, **95**		2			8	none
Demography	3	3	**2**, **39**, **45**	2	1				mod pos
Reg	6	5	**1**, **14, 34**, **38**, **66**		2			3	none
Rep	9	8	**6**, **7**, **16**, **37**, **59**, **61**, **85**, **89**		4			4	none
Attribute									
Gov	4	3	**18**, **57**, **81**		3				weak pos
Leader	5	2	**35**, **96**		2				weak pos
Culture	5	4	**43**, **56**, **73**, **83**		3			1	weak pos
Strategy									
Financial	1	1	**5**	1					mod pos
QI	23	16	**10, 20**, **21**, **22**, **23**, **24**, **25, 26**, **30**, **47**, **64**, **65**, **76**, **78**, **91**, **98**		2			14	none
Innovation	9	8	**8**, **9, 13, 19**, **40**, **46, 15**, **52**	2	3			3	weak pos
HR	1	1	**74**		1				weak pos
Knowledge	1	0							

Performance not specified E

	N	**Performance effect**							
Multi-factor		E (n)	Article ID	E (++ mod pos)	E (+ weak pos)	E (- weak neg)	E (-- mod neg)	E (-/+ none)	Tally
Multi-factor	8	4	**12**, **84, 88**, **92**		3			1	weak pos
Enviro	3	1	**11**					1	none
Attribute	3	0							
Strategy	4	1	**70**		1				weak pos
Environment									
Funding	13	1	**4**		1				weak pos
Demography	3	0							

Reg	6	1	**41**				1	none
Rep	9	1	**48**				1	none
Attribute								
Gov	4	1	**62**		1			weak pos
Leader	5	3	**53, 67**, **72**	1	2			weak pos
Culture	5	1	**87**		1			weak pos
Strategy								
Financial	1	0						
QI	23	7	**3**, **50**, **54**, **55**, **60**, **77**, **93**	1	3		3	none
Innovation	9	1	**51**				1	none
HR	1	0						
Knowledge	1	1	**63**				1	none

Evidence

Tally Rule

1. Crude tally count – more than 50% tally wins the category.
2. Where tally is equal between two categories, the more conservative choice is made (for example, if there are two votes, one in 'weak positive' and one in 'no effect/mixed' the latter will be chosen.
3. Where tally is equal or near equal between three categories, a moderating adjustment will be made (for example, if 'weak positive' and 'no effect/mixed' have both 3, but there are also 2 in 'moderate positive', 'weak positive' will be chosen.

Characteristics + Evidence

Tally Rule

Always take the more conservative result

All ++ or +	No adjustment to evidence tally
1 - / N/A and no or minor contested evidence	No adjustment to evidence tally
1 - / N/A and considerably contested evidence ('contested evidence' means mixed results between the five outcome factors)	Adjustment to reduce evidence strength by one level
2 - / N/A and no contested evidence	Adjustment to reduce evidence strength by one level
2 - / N/A and contested evidence	Adjustment to reduce evidence strength to 'no effect / mixed'

APPENDIX C – THE PROCESS AND VALIDATION OF CASE SITE SELECTION

Background

Initially, the empirical research reported within this thesis gained ethics approval for a mixed-methods study examining the performance of several large acute public hospitals in Australia. It was intended as a multi-site study in which hospitals, with various different performance trajectories, were compared.

The purpose of the research project was to investigate the circumstances and processes by which hospitals were able to improve and sustain performance. Of particular interest, were the organisational and managerial practices that may have influenced the hospital's capacity for sustained performance improvement. A qualitative comparative case study was to be conducted, comparing the context and conditions for change within approximately three to four case sites. It was intended that this preliminary qualitative study would help inform the design of a quantitative survey, to be applied to the population of primary referral and large acute hospitals in Australia (N=91 hospitals).

Expert panel

An anonymous panel of experts were drawn upon to nominate potential Australian hospitals with contrasting performance patterns. Panellists comprised a mix of both senior academics and experienced health administrators and bureaucrats. The aim was to select and recruit case sites that reflect contrasting performance histories, as judged over an approximate 10-year period (2005-2015). 'Performance' was taken to refer to a broad range of factors including financial, process and efficiency, and patient outcomes (safety and quality). The performance trajectories of particular interest were classified in the table below:

Table C-1: Performance trajectories of interest to the study

Performance Trajectory A	An overall consistent pattern of 'low' performance for a number of years *(< peer average)*
Performance Trajectory B	An historical pattern of 'low' performance followed by a recent trend of improved performance (satisfactory performance or high performance) *(from < peer average to at least 1-2 years ≥ peer average)*

Performance Trajectory C	An historical pattern of 'low' performance followed by a pattern of improved performance (satisfactory performance or high performance) followed by a return to 'low' performance *(from < peer average to at least 1-2 years ≥ peer average, returning to at least 1-2 years < peer average)*
Performance Trajectory D	An historical pattern of 'low' performance followed by a consistent trend of sustained improved performance (satisfactory performance or high performance). *(from < peer average to at least 3-5 years ≥ peer average)*

Expert panel members were asked to confidentially and anonymously nominate up to three large acute Australian hospitals that they considered to 'fit' the criteria for each performance trajectory.

Analysis of available performance data

Supplementary to the expert nomination of potential case sites, performance data published on the Australian Government Australian Institute of Health and Welfare (AIHW) 'myHospitals' website was considered. At the time of case site selection, performance data corresponding with the financial years 2011/12 to 2013/14 was available for Australia's hospital sites (e.g. The Alfred Hospital) as opposed to Local Hospital Networks (e.g. Alfred Health comprising The Alfred Hospital, Caulfield Hospital and Sandringham Hospital). The following three figures (Figure C-1 to C-3) show comparative performance data for a selection of Australia's higher performing hospitals that were short-listed for study. Please note, for ease of identification, The Alfred Hospital is drawn with a dashed line in blue or brown colour. The black dashed line indicates peer average performance within some figures.

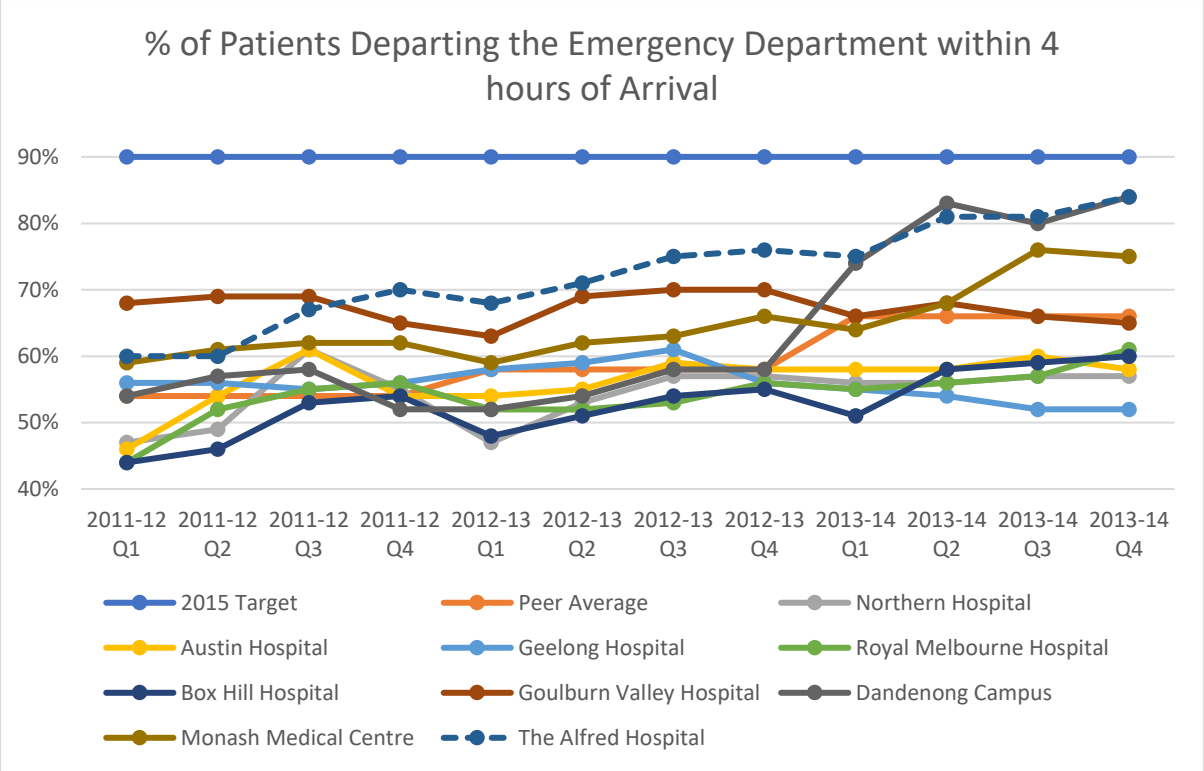


Figure B-1: National Emergency Access Target (NEAT) performance for select hospitals

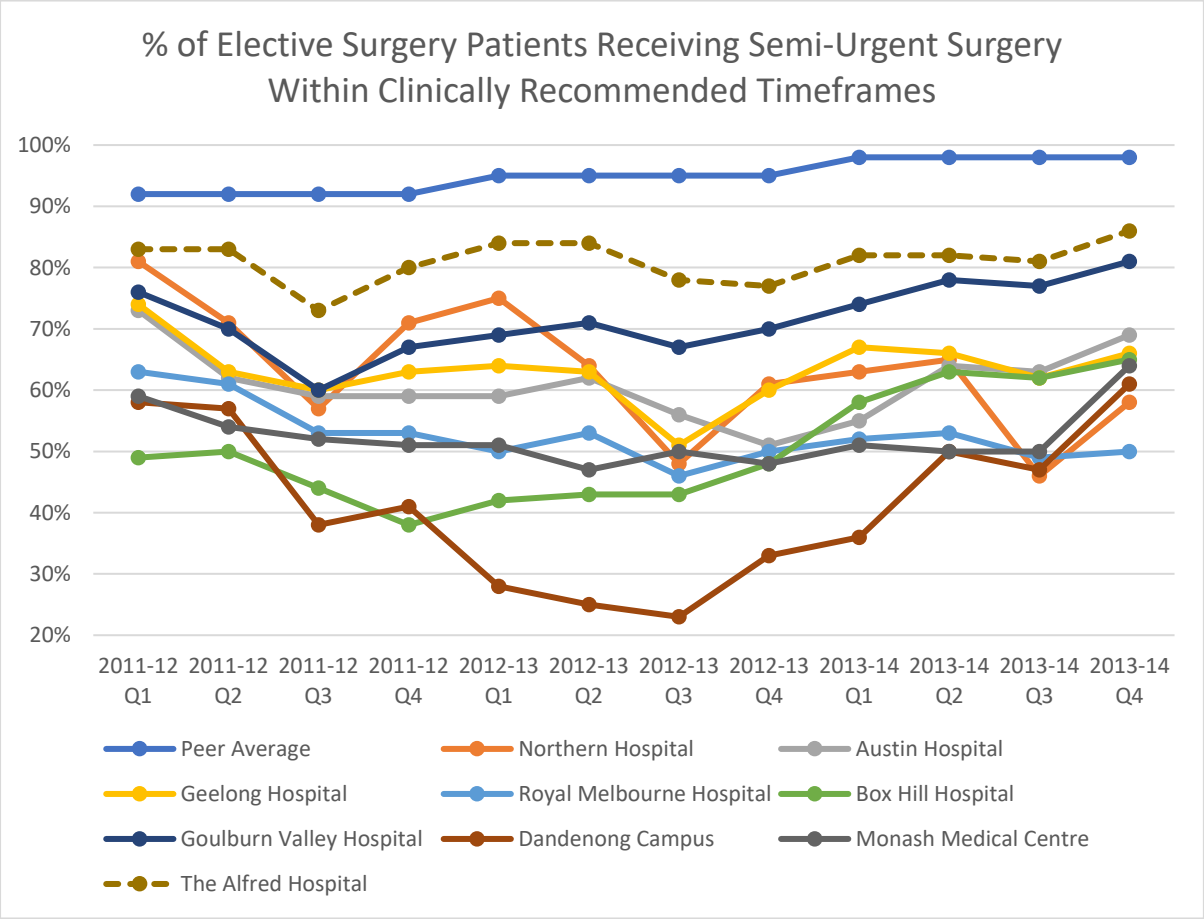


Figure C-2: Semi-urgent elective surgery performance for select hospitals

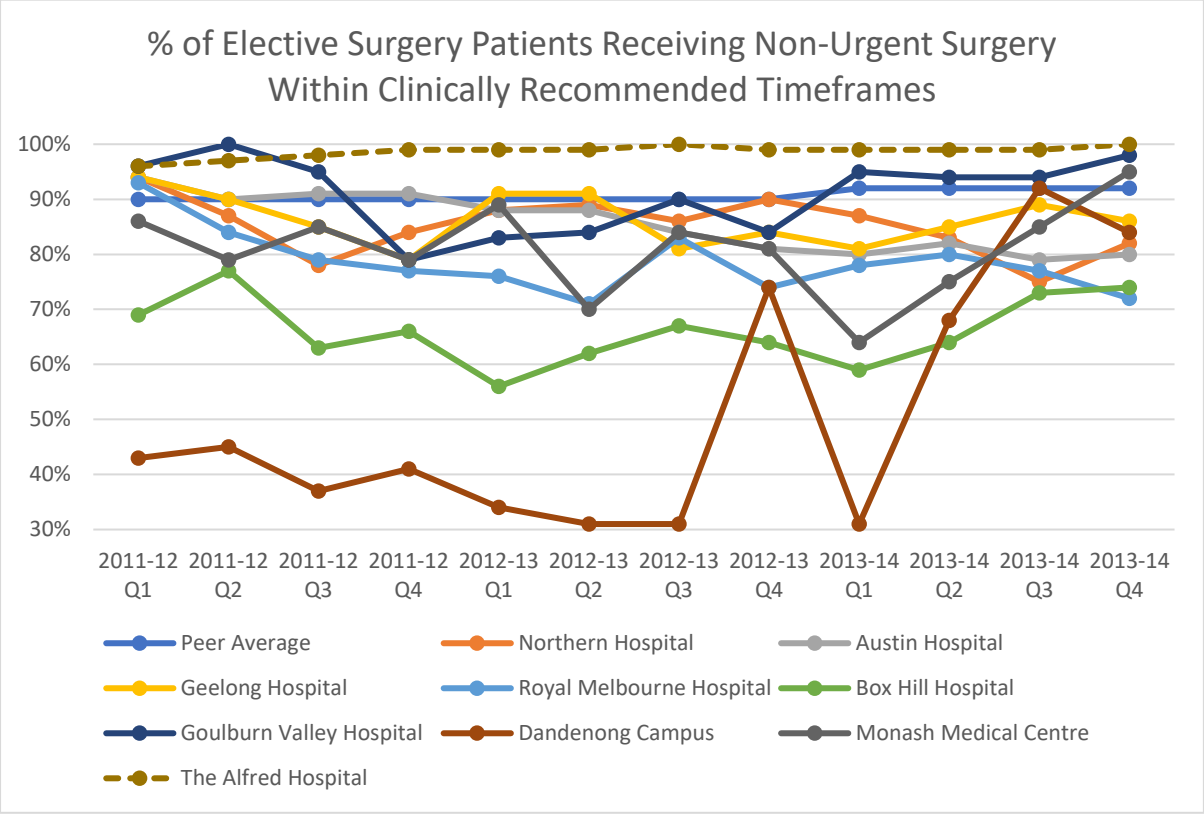


Figure C-3: Non-urgent elective surgery performance for select hospitals

Aggregated performance data for emergency department and elective surgery access performance was also available, as show below within Figures C-4 to C-6.

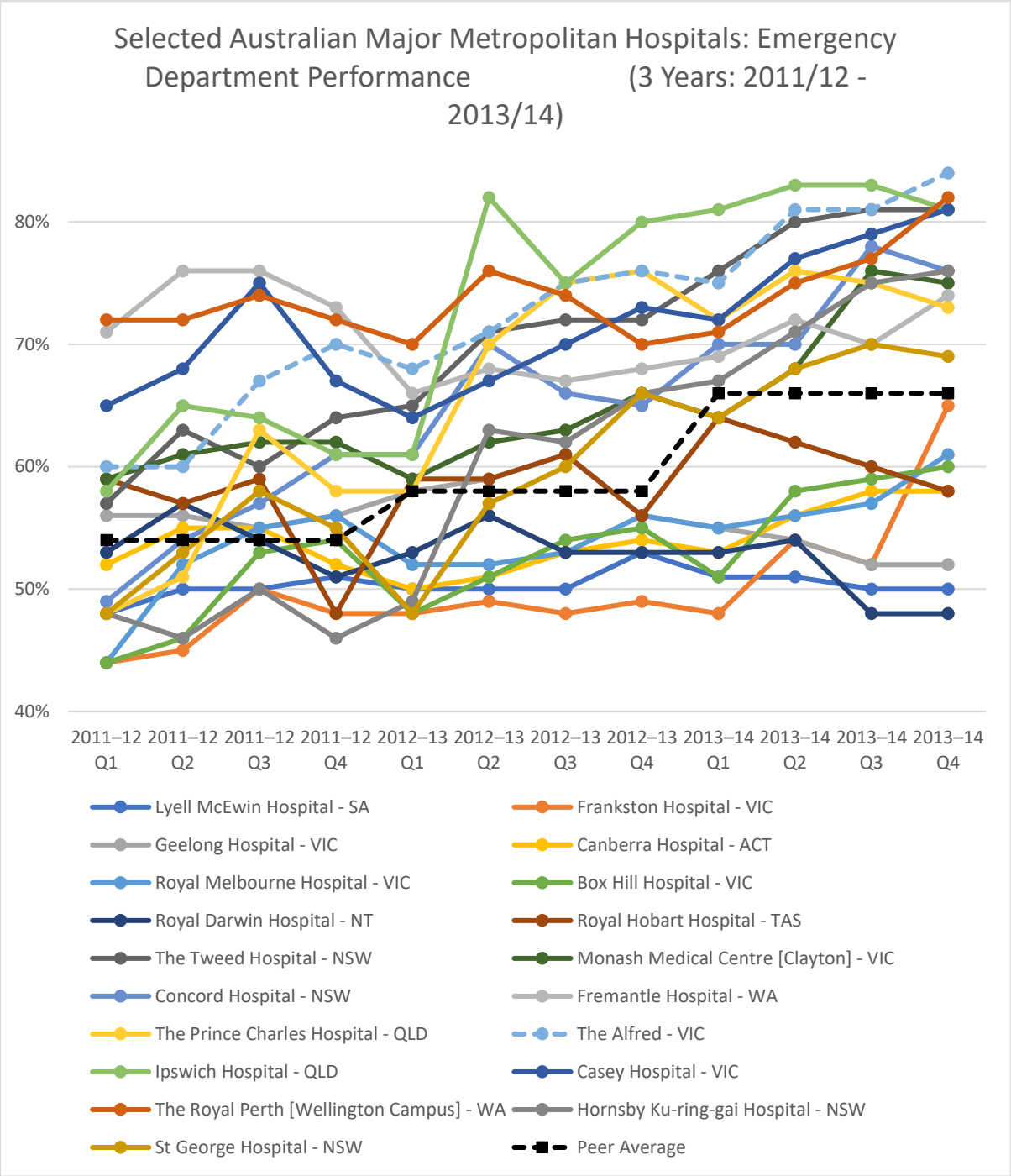


Figure C-4: Emergency department performance for select hospitals

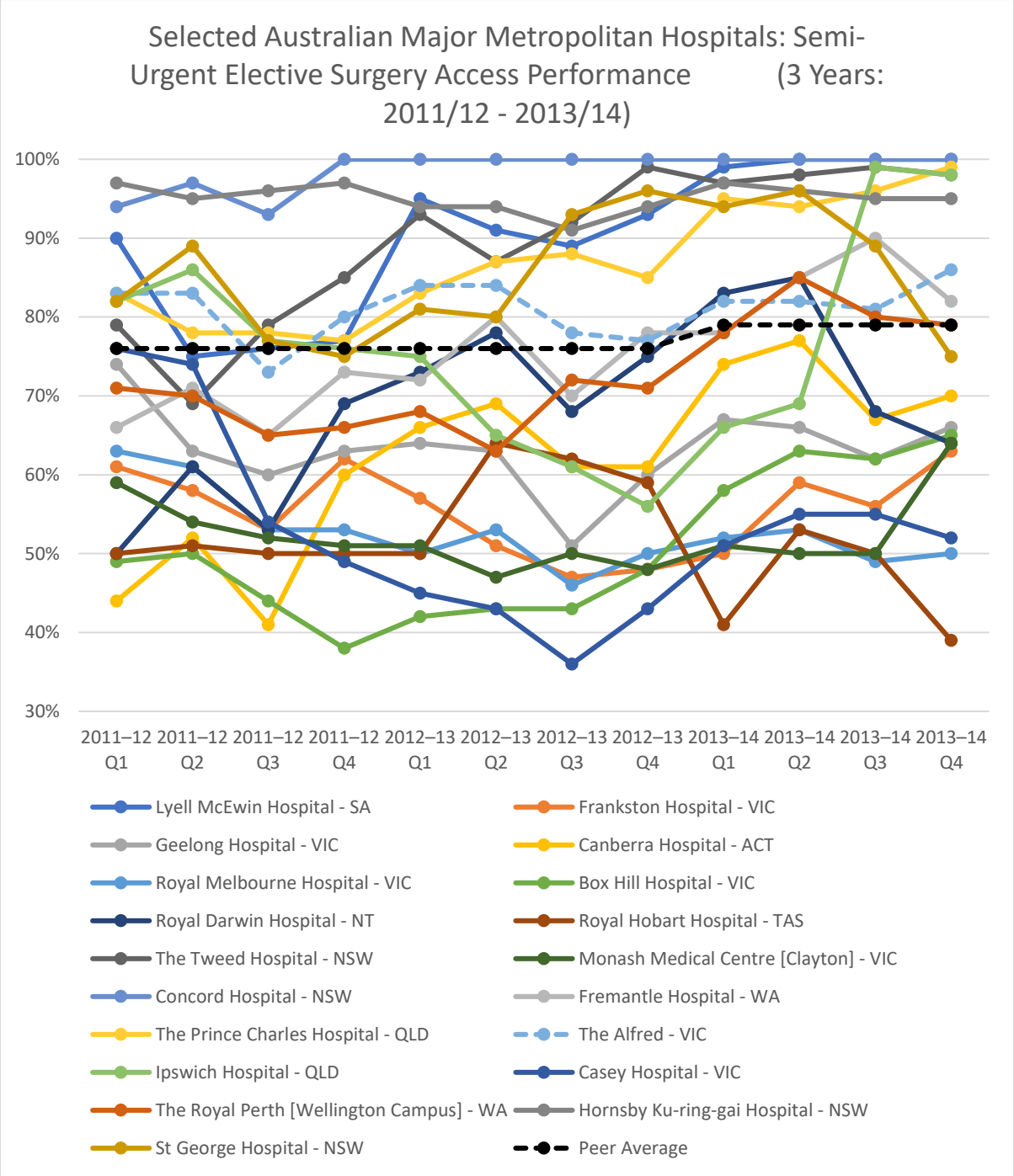


Figure C-5: Semi-urgent elective surgery access performance for select hospitals

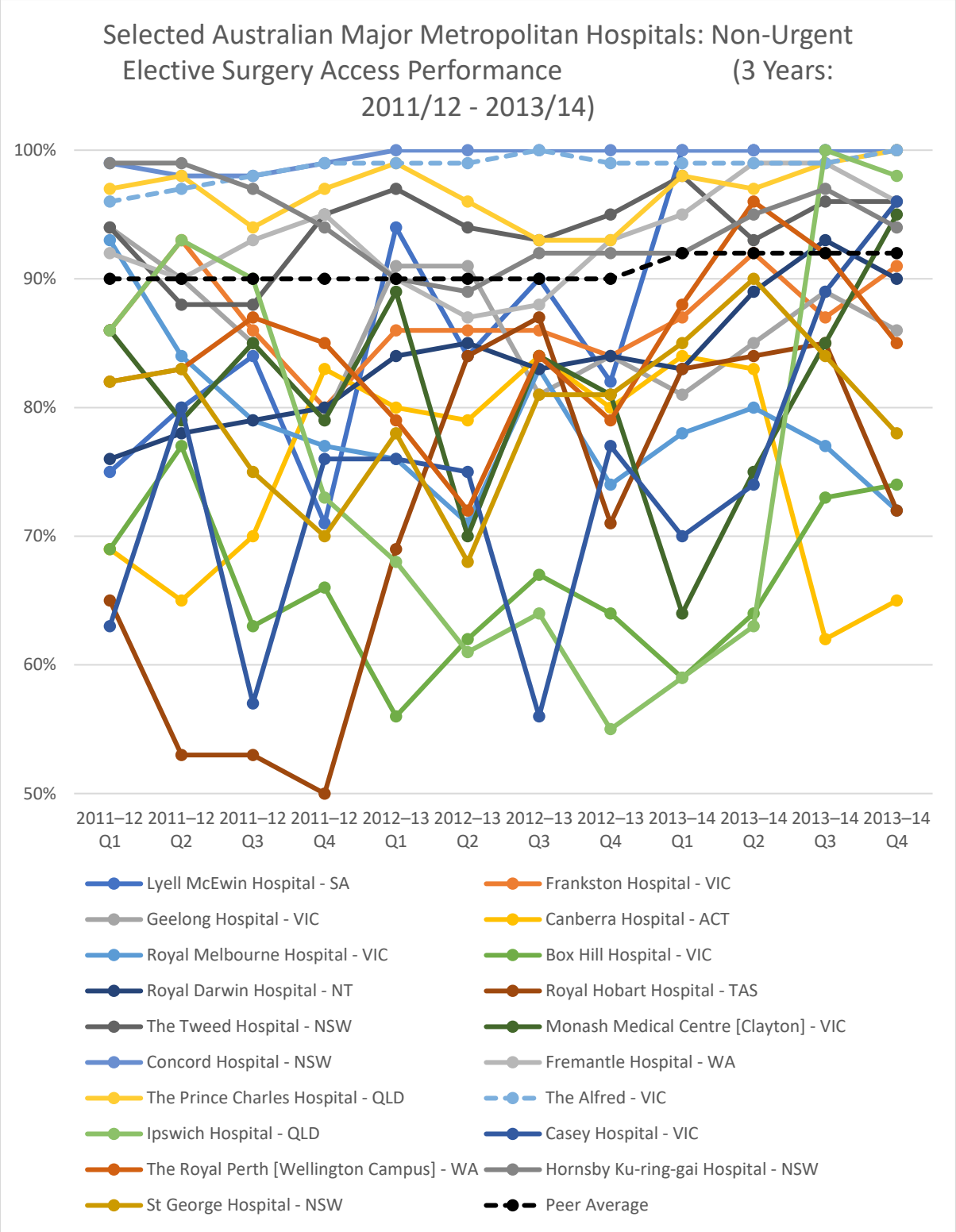


Figure C-6: Non-urgent elective surgery access performance for select hospitals

It is worthwhile noting that a selection of lower performing hospitals was also shortlisted for study (see below figures). Some hospital sites declined to participate in the study, and it was therefore not possible to carry forward the comparative multi-case site study design.

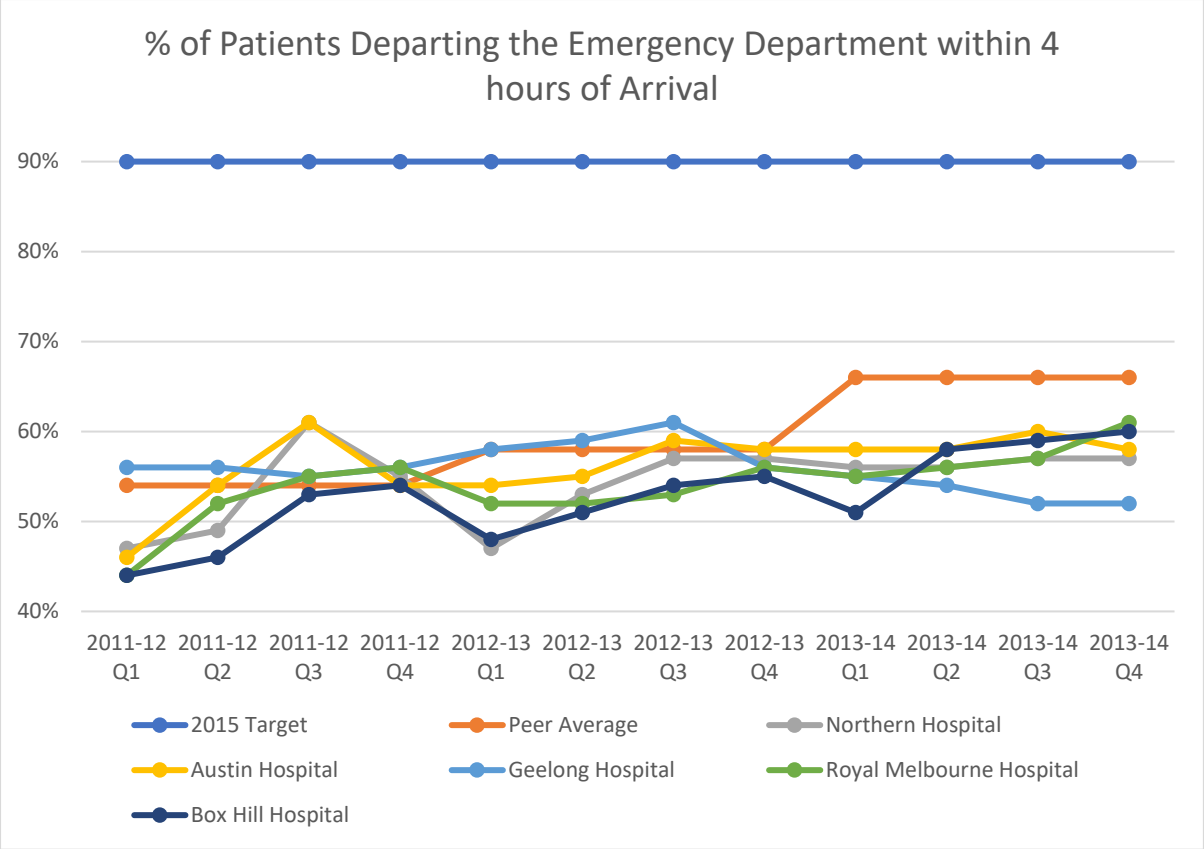


Figure C-7: National Emergency Access Target (NEAT) performance for select hospitals

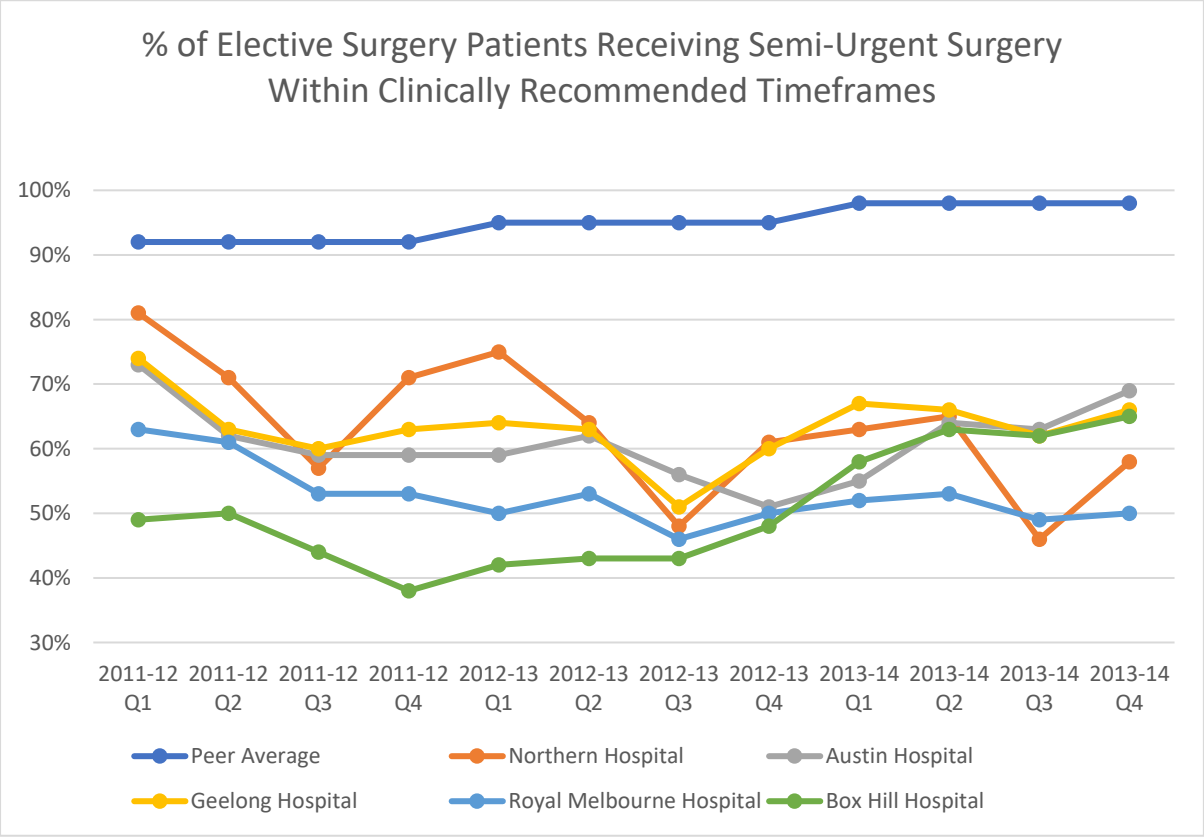


Figure C-8: Semi-urgent elective surgery access performance for select hospitals

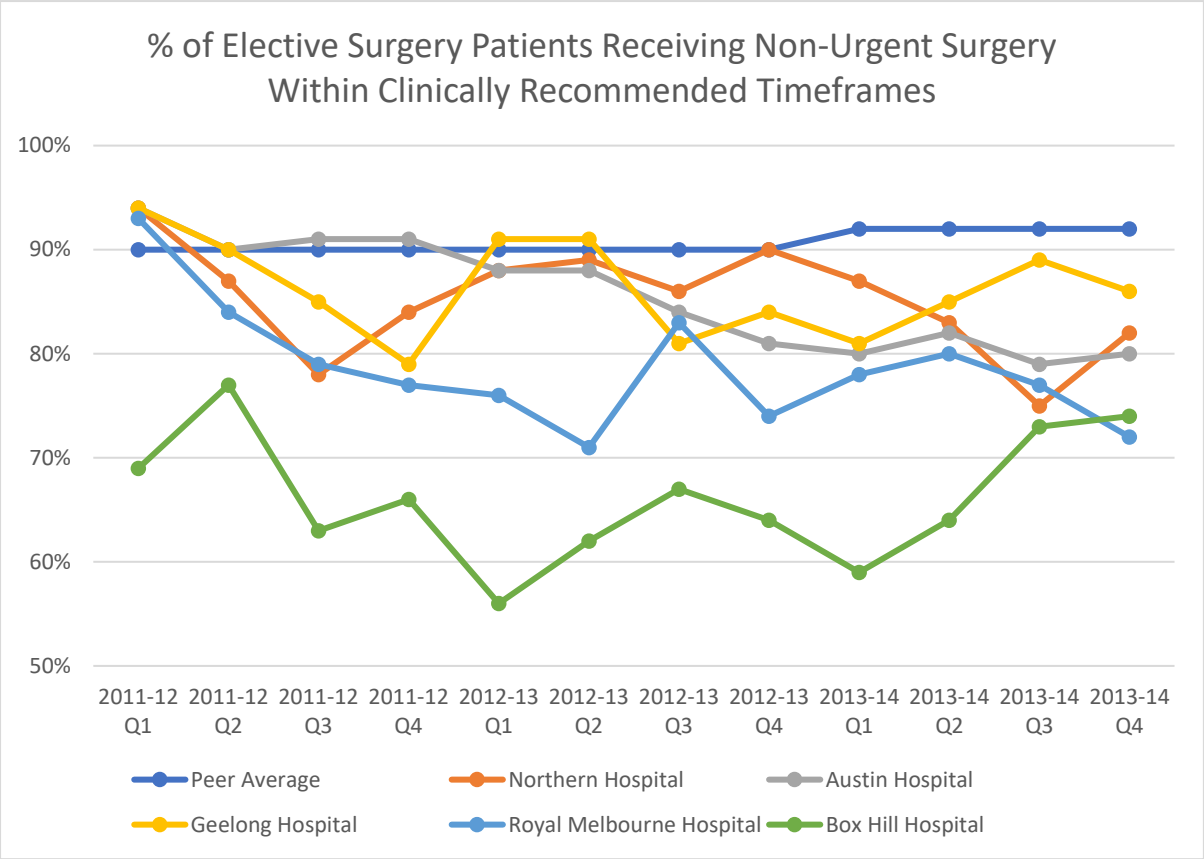


Figure C-9: Non-urgent elective surgery access performance for select hospitals

Selection of case site

After receiving the anonymous expert nominations of hospitals corresponding with various performance trajectories and forming a comparison of available hospital performance data, a priority list of hospitals was drawn together. Selected hospitals were invited to participate in the study on the basis of this data. Alfred Health agreed to participate in the study.

Validation of case site selection

Acknowleging that the availability of performance data spanned a relatively short period of time (2011-2014) and that expert panellists may have been influenced by cognitive biases (for example, recency bias), a process to validate the classification of The Alfred Hospital / Alfred Health as a 'high performing' and 'performance improving' case site was devised. This process involved: i) checking with interview participants regarding their understanding of the performance trajectory of the case site; and ii) as part of the documentary data analysis, assessing performance data included within annual reports published between 1989 and

2017 (see Sections 6.1.2, 6.2.2 and 6.3.2). Essentially, this process acted to triangulate data sources in order to assess the accuracy and trustworthiness of case site selection.

Relating to the former tactic: at the end of the semi-structured interview process, the interviewer defined what was meant by 'hospital performance' and the categories of performance trajectories were described. Interview participants were then asked to nominate which category of performance trajectory they considered Alfred Health to belong (assessed over an approximate twenty year period), or otherwise describe the performance trajectory of the organisation if their understanding of the case site's performance trajectory did not fit any of the pre-determined categores. Without exception, responding participants either considered Alfred Health to have recorded a consistently high performance trajectory, or Performance Trajectory D, an historical pattern of 'low' performance followed by a consistent trend of sustained improved performance (satisfactory performance or high performance). Participants who has been working within the organisation for a fewer number of years tended to select the former, and participants who had been familiar with the organisation for longer tended to select the latter.

Conclusions on Performance

It is worth noting that an assessment of performance over such a long span of time is not without limitations. For instance, notions of hospital performance have evolved substantially from the 1980s – moving from a predominant emphasis on financial performance to a greater focus on safety and quality and access to care in later decades. As such, the measures used to assess performance were quite different during the 1990s as opposed to the 2010s, making direct comparison somewhat challenging.

Nonetheless, the triangulated validation process would suggest that Alfred Health had undergone a relatively consistent trajectory of performance improvement from the late 1980s to the late 2010s. The baseline performance could not faithfully be described as 'poor' (perhaps with the exception of financial performance, which was more volatile during 1990s and early 2000s), and so it would be more accurate to characterise the organisation as having moved from satisfactory performance during the late 1980s to excellent performance (as compared with peer organisations) by the 2010s.

APPENDIX D – THE DEVELOPMENT OF A METHOD FOR CRITICAL REALIST THEMATIC ANALYSIS

Background

Although there is a clear, well-documented relationship between critical realist ontology, epistemology and methodology (Archer 1998; Bhaskar 1978, 1979), the link between methodology and method appears lacking (Ackroyd & Karlsson 2014). The critical realist literature provides little in the way of detailed procedural guidance regarding how a researcher might undertake research that remains faithful to the principles of critical realism (Ackroyd & Karlsson 2014). In response to this deficit, a critical realist method was devised, as presented herein. It is important to note that, in practice, the method was found to be flawed due to a somewhat unexpected ontological/epistemological conflict between two components (inputs) of the method. For this reason, the study method documented here was not used in full. What was actually *done* to conduct the empirical study of this thesis is detailed within Chapter 4. Despite the 'failure' however, there is merit in documenting both the process and outcome of method development, as it may help to further the broader scholarly understanding of critical realist method – an area that is sorely in need of academic focus and effort.

The novel method is a synthesis of existing methodological knowledge. That is, following an examination of extant literature, three methodological papers informed the critical realist method initially developed for this study. The first paper, written by Braun and Clarke (2006), provides a structural basis for data analysis. Second, Wynn and Williams (2012) provide a broad principle-level methodological framework for critical realist research. And a third paper, by Fletcher (2017) gives further substance and detail to the task of critical realist analysis for case study, including an approach to data coding that is consistent with the key principles of the methodology. Table D-2 inserted at the end of this Appendix, summarises the relevant 'inputs' extracted from the three papers, and indicates the resulting 'process' devised to guide the study and the expected 'output' at the completion of each stage of research and analysis. The relevant methodological features drawn from each paper are described, below.

Braun and Clarke (2006)

Braun and Clarke's (2006) well-known thematic analysis method for qualitative data analysis was selected to provide a clear structural 'backbone' for the study design. Braun and Clarke are highly encouraging of thematic analysis being used, quite fluidly, in this way:

> *… thematic analysis is not wedded to any pre-existing theoretical framework, and therefore it can be used within different theoretical frameworks (although not all), and can be used to do different things within them. Thematic analysis can be an essentialist or realist method… or it can be a constructionist method… It can also be a 'contextualist' method, sitting between the two poles of essentialist and constructionism, and characterised by theories, such as critical realism… (p. 81)*

According to Braun and Clarke, it is less important *which* philosophical-theoretical position is adopted than it is that researchers are explicit in their use and acknowledgement of the theoretical assumptions that (inevitably) arise during the research process (2006). Readers of Braun and Clarke are tasked with the resolution of a number of decisions prior to undertaking the step-by-step guide for thematic analysis: i) 'what counts as a theme?'; ii) the selection of an inductive or deductive approach; iii) a choice between the 'levels' at which a theme is to be identified – the semantic (explicit) level, or the latent (interpretative) level; and iv) a commitment to a particular epistemological position. An adherence to the critical realist stance addresses each of these questions as demonstrated below. In fact, it was the initial attempt to respond to Braun and Clarke's preliminary questions that prompted the examination and later adoption of critical realism as the most suitable framework with which to approach the research aims of the current study.

Braun and Clarke's structural guide to thematic analysis proceeds through six phases, although in practice their use is somewhat recursive: i) data familiarisation; ii) generation of initial codes; iii) search for themes; iv) review of themes; v) definition and naming of themes; and vi) report on outcomes. For the purposes of this study, 'study design' and 'data collection' are added to the list, in order to encompass the 'end-to-end' research process (see Table D-2).

The first of Braun and Clark's phases, 'data familiarisation' seeks to familiarise and immerse the researcher within the content and expression of interview transcripts and documentary data, through reading, re-reading and note-taking/memo-writing. The second phase then seeks to generate preliminary codes from the data. According to Braun and

Clarke's method, this task may be approached somewhat freely, by coding all 'interesting' aspects of the data systematically across the data set, however later, this part of the process might be approached with a much closer reflection on the overarching research question or theoretical framework in use (for a more 'theory-driven' deductive approach). The authors recommend: coding all data extracts; initially coding for multiple possible themes and emerging patterns; coding 'inclusively' in order to capture vital aspects of the code in context; coding extracts into as many preliminary 'themes' as necessary; and actively searching for disconfirming and conflicting evidence throughout the process.

The third part of the process seeks to collate codes into potential themes. As advised by Braun and Clarke, this may occur multiple times, identifying several instances where themes overlap and where central concepts belong to multiple themes. In these instances, themes might be abandoned, recast or refined, and the researcher returns to the second and third phases numerous times, until distinct themes are identified. Themes are then to be checked and reviewed, first against the coded extracts and second, against the entire data set. This results in the development of a thematic map towards the end of the fourth phase, in which themes are reviewed.

The fifth phase attempts to refine the specifics of each theme, giving rise to the overall chronology or narrative and generating clear definitions for each theme. This refining process might occur recursively, flowing back and forth several times between the fourth phase to review themes, and the fifth to define and name the themes, prior to a final resolution and interpretation of themes. The sixth phase involves drawing the findings together in a coherent written report.

Wynn and Williams (2010)

Having recognised the limitations of the field to provide methodological guidance, and subsequently undertaking to distil the key ontological and epistemological tenets of critical realism, Wynn and Williams (2012, p. 788), identified five core methodological principles for critical realist research. These are: i) 'explication of events'; ii) 'explication of structure and context'; iii) 'retroduction'; iv) 'empirical corroboration'; and v) 'triangulation and multimethods'. 'Explication of events' refers to "the necessity to identify the detailed aspects of events being studied, usually through the abstraction of experiences, as the foundation of causal analysis" (Wynn & Williams 2012, pp. 796-797). This involves examining the

perceptions and experiences of research participants and researchers, as well as the various actions and outcomes recorded by empirical means. A researcher then organises and abstracts this data, in order to form a detailed description of those events that appear to have led to the perceived outcome under study. The relationship between events and experiences is not necessarily straightforward, and a degree of analytic iteration may be required to tease out potentially overlapping, embedded, multiple or temporally evolving events and experiences.

An 'explication of structures and context' follows this initial step. A key question for researchers is: 'What is it *about* the structures which might produce the effects at issue?' (Sayer 1992). The focus is to identify the causally-relevant components of the structure under study, deconstructed into constituent parts, such as: actors, rules, relationships. These relevant structural components (as revealed by the descriptions of events), are identified and examined for their connections, interdependencies, and for any causal links that might help to explain the empirical outcome. The process results in a conceptual description, illuminating the likely properties and tendencies of structural entities and the relationships between these entities, to draw inferences about the emergent properties of the structure as a whole. Wynn and Williams (2012, p. 799) provide a cautionary note, warning novice critical realists to apply appropriate boundaries of inquiry, given the potentially open-ended nature of the task.

'Retroduction' involves the conceptual bridging of structure and events. Fundamental to this process are the questions: What must reality be like for the observed event to have occurred? What mechanisms must exist? (Wynn & Williams 2012, p. 799), and finally 'what makes [the phenomenon of interest] possible?' (Wynn & Williams 2012, p. 800). Retroduction attempts to draw inferences about possible causal mechanisms acting between and within the explicated structural components (and their constituent properties and tendencies), to bring about the events and outcomes of interest. Retroduction is distinct from 'induction' and 'deduction', rather, it may favour one tactic, or the other, or both, depending upon the pragmatic value offered. For instance, the retroductive process may begin with a consideration of existing theorised mechanisms to examine their relevance and fit for the specific case, or, where existing theory is not useful, new mechanisms may be conceived in direct response to the data.

In light of the creative and intuitive nature of the retroductive process, Wynn and Williams (2012, p. 800) are sceptical about the value of specific or prescriptive guidance on the task. They note, however, that various well-respected analytical approaches can be used in ways that are compatible with the critical realist retroductive principle (and process), including: Eisenhardt (1989), Glaser and Strauss (1967), Miles and Huberman (1994), Pettigrew (1995), Strauss and Corbin (1998) and Yin (2014). Retroduction, they advise, is iterative in nature, and is useful during both data collection and analysis (e.g. corroborating interviews, coding, within and cross-case analyses, process modelling etc.), and may illuminate numerous potential mechanisms, operating at different levels within a given case. Therefore, the primary goal is to produce 'the most complete and logically compelling explanation of the observed events given the specific conditions of the contextual environment' (Wynn & Williams 2012, p. 800). This is perhaps also the broader task of researchers collectively, who may work together, or separately, to reveal knowledge of 'the real', which is rendered more accurate, with time.

'Empirical corroboration' refers to the process whereby alternative theoretical explanations (causal mechanisms) are compared against the empirical evidence to assess: i) the degree to which the hypothesised mechanism clearly and accurately describes the observed outcomes within the given context; and, ii) the relative explanatory power of the theory, in comparison with other competing or alternative propositions. The use of longitudinal and/or cross-case study designs are useful for this process. Additionally, Wynn and Williams (2012, p. 802) draw on the work of Runde (1998) who generated four 'test' questions for evaluating causal explanations, from a realist perspective. These questions are provided in Table D-1, reproduced from Wynn and Williams (2012).

Table D-1: Runde (1998) causal test questions for evaluating causal explanations

Causal Test Questions	**Implications**
Are the causal factors of the phenomenon actually manifest in the context?	• Confirm that a cited causal factor was in fact part of the context of the phenomenon. • Confirm that explanatory information from generalization (e.g. reference theory) applies to the specific context. • Ensure causal factors are not idealizations; the causal factor may potentially exist in the realm of the real and not just as an impossible theoretical entity.

If the causal factors were part of the context, were those factors causally effective?	• Assess the proposed causal factor to determine if it is a cause of the phenomenon and not an accidental or irrelevant feature of a genuine cause. • Determine if the proposed causal factor was in fact preceded by another causal factor of the event.
Do the causal factors provide a satisfactory explanation to the intended audience?	• Ensure the causal explanation is not too remote (unspecified links in causal chain or adequate knowledge of links cannot be assumed). • Ensure the causal explanation is not too small such that it is just one of a composite of causes producing the observed event.
Does the proposed mechanism provide causal depth?	• Assess *depth of necessity* such that the observed event would have occurred in the absence of the proposed causal factor due to the presence of an alternative causal factor. • Assess *depth of priority* to determine if the proposed causal factor is closely preceded by another causal factor significant in explaining the event.

Finally, Wynn and Williams propose 'triangulation and multimethods' as a key principle of critical realist research. According to the critical realist stance, reality comprises various different structural types (e.g. physical, social, conceptual etc.) with correspondingly diverse properties, powers and causal tendencies. In order to comprehend the entire structure, it is useful to use different means and methods for gathering knowledge. Triangulation also helps to identify, control and overcome potential research biases inherent within particular methods.

Fletcher (2017)

Fletcher (2017) draws similar conclusions to those of Wynn and Williams (2012), as to the state of critical realist methodological literature: '…little guidance is available on which precise methods – including methods of data collection, coding and analysis – are best suited to applied.. [*critical realist*] research' (p. 181). Much of the literature, Fletcher points out, is either concerned with the broad questions of philosophy of science, or culminates in summarised empirical reports with little detail spared for *how* the study operationalised the critical realist frame, or *how* the critical realist stance influenced or contributed to research findings (2017, p. 182).

Fletcher recommends that critical realist researchers begin by devising a research question that is consciously informed by theories or empirical knowledge developed in previous research. This is supported by the epistemological principle of 'mediated knowledge' as described by Wynn and Williams (2012), and could also be viewed as a preparatory stage

for the practice of 'retroduction'. This is not the same as a deductive (theory-confirming/disconfirming) approach, in fact, Bhaskar (1979, p. 6) suggests that we 'avoid any commitment to the content of specific theories and recognise the conditional nature of all its results'. Rather, Fletcher (2017) recommends being aware of the 'initial theories' that inform the study at hand, and using these as a starting point, with full acknowledgement of their limitations. As such, 'initial theories' may be supported, modified, combined or rejected throughout the course of analysis in order to accurately explain the phenomenon (in context), under study.

Fletcher's (2017) advice regarding data collection is not dissimilar to other broad qualitative models, including a triangulated approach (using documentary and interview data), and her work has favoured the semi-structured interview method. Interview transcriptions are necessary for coding, and Fletcher draws on both 'background', and 'intensive interviews' to guide the selection of participants. Following data collection, Fletcher describes the search for 'demi-regularities' and 'tendencies' through a two stage data-coding process. Consistent with a 'retroductive/abductive' methodological middle-ground, Fletcher raises the possibility of following either a deductive or inductive-led coding procedure. In either instance, theoretical (deductive) codes are extracted from the existing literature and, at some point during coding, are combined with codes derived directly from the empirical data.

In her empirical work, Fletcher used a 'deductive yet flexible' process (2017, p. 186), in which, provisional 'theoretical' (deductive) codes were used as a starting point to code data. Where theoretical codes proved inadequate, 'organisational' (inductive) codes were created. The flexibility within this approach may lead to an initial rapid expansion of codes (Fletcher's exemplar study generated an initial 198 codes, 32 of which were 'theoretical'), and to manage this, a second coding cycle is used to reduce and reorganise codes. According to Fletcher's method, the reorganisation of codes may also be influenced by key ontological concepts of critical realism, including 'structure' and 'agency' etc. As recommended by Fletcher, the second coding cycle ends with a conceptual map of codes, in which coding software can be used to identify dominant codes, and to view connections between codes. Fletcher suggests that dominant codes provide a useful starting point for the identification of demi-regularities. The next stage of Fletcher's analytic process involves abstracting codes through the use of abduction and retroduction, in order to form scientific inferences about the causal mechanisms at play. By 'abduction', she refers to a process of 'theoretical redescription' in

which ‘empirical data are re-described using theoretical concepts’ (Fletcher 2017, p. 188). The process of retroduction attempts to form an explanatory model, encompassing each of the key components of the theorised critical realist ontology (structures, entities, events, causal mechanisms, and contextual conditions).

The development of a critical realist study design

Due to the substantial deficits within the critical realist literature on method, the works of Braun and Clarke (2006), Wynn and Williams (2012) and Fletcher (2017) were brought together to create a novel research design (see Table D-2) for this study.

Braun and Clarke’s thematic analysis approach (2006) provided a broad structural guide to the analysis. This is helpful for a number of reasons. First, it provides a well-tested and logical procedure with which to conduct and analyse the research. Second, it supports the use of a number of best practices for qualitative analysis (i.e. data familiarisation prior to coding). Third, the method supports many key premises of the critical realist stance (i.e. empirical corroboration through the checking of themes against data extracts and the data set). Fourth, unlike many analytic procedures for qualitative research (i.e. those used for grounded theory, phenomenology, discourse analysis etc.) Braun and Clarke’s ‘generalist’ approach was specifically designed to accommodate various ontological and epistemological perspectives. This was considered useful, as it suggested that the method itself would be less likely to carry with it conflicting assumptions that may compromise the integrity of the critical realist research design. Unfortunately, in enacting the method during the data analysis phase (of the current research study), this ontological-epistemological neutrality was found to be false on at least one dimension. However, this conflict was not anticipated during the development of the study design.

Finally, it is interesting to note that Fletcher (2017) chose not to employ a thematic analysis, rather, her method moved from code reduction directly to explanation (via abduction and retroduction). This is consistent with Fletcher’s commitment to a ‘deductive yet flexible’ approach (2017). The addition of a ‘theming’ step between coding and explanation introduces added scope for inductive analysis and reasoning. This is because the data itself is subject to a further degree of abstraction, interpretation and inference, before undergoing the retroductive analytic process, which, for critical realist research is conceptualised within the stance’s corresponding ontological and epistemological frames. A

balance between the 'deductive' and 'inductive' was sought for the current research, and employing Braun and Clarke's thematic analysis structure (2006) was thought to assist, in this way.

Table D-2 Logic Model for a Critical Realist Study Design – Analytic Inputs, Process (Method) and Outputs

INPUT			**PROCESS (Study Method)**	**OUTPUT**
STRUCTURE	**PRINCIPLE**	**PROCESS**		
Thematic Analysis Structure (Braun & Clarke 2006)	*Critical Realist Principles (Wynn & Williams 2012)*	*Critical Realist Coding (Fletcher 2016)*		
Research Design	• Mediated knowledge • Triangulation & Multi-methods	• Creation of research question • Creation of thematic codes, informed by prior research	• Creation of overarching study design • Development of research questions • Development of thematic codes	• Research protocol • List of thematic codes
Data Collection	• Triangulation & Multi-methods		• Intensive data collection: documentary data and semi-structured interviews	• Documentary data • Interview transcripts
Data Familiarisation	• Explication of events	• Search form demi-regularities	• Reading and re-reading of documentary and interview data • Memo-writing	• Memos • Documentary data table (narrative structure)
Generating Initial Codes		• Organisational coding • Theoretical coding • Conceptual map of codes	• Organisational and theoretical coding • Review and code reduction, if applicable • Conceptual map of codes • Memo-writing	• List of codes • Conceptual map of codes • Memos
Searching for Themes	• Explication of events • Explication of structure and context	• Abduction • Retroduction	• Collation of categories • Formation of analytic themes • Theoretical redescription	• Preliminary themes and theoretical model • Memos

	•		• Preliminary analysis of causal mechanisms and conditionsMemo-writing	
Reviewing Themes	• Retroduction • Empirical Corroboration	• Abduction • Retroduction	• Check themes against coded extracts • Check themes against data set • Checking theoretical model through participant validation interviews • Memo-writing	• Refinement of themes and theoretical model • Memos
Defining and Naming Themes	• Retroduction	• Retroduction	• Theoretical model • Analysis of causal mechanisms and conditions • Memo-writing	• Theoretical model • Final Themes • Memos
Report	• Retroduction • Empirical Corroboration		• Retroduction • Presentation of causal findings	• Report / publication

The five broad methodological principles for critical realist research, as described by Wynn and Williams (2012), provided a firm basis upon which to ensure that the analysis of data remain consistent with critical realism. First is the triangulation of at least two sources of data, for instance, documentary and interview. Second, these sources of data then undergo 'event explication'. Third, 'explication of structure and context' occurs during the search for themes. Fourth, 'empirical corroboration' is employed at the theme-checking stage, and finally, 'retroduction' forms the analytic basis for the finalisation of themes and explanatory inferences made within the reported findings.

For guidance on the more granular application of critical realist principles, including approaches to data coding, Fletcher's (2017) paper was highly informative. Although the current study differs somewhat from Fletcher's, particularly regarding the balance and timing of deductive and inductive approaches (as outlined above), a number of the author's key research tactics influenced the development of this novel method. In particular, these include: the creation of a theory-informed research question; the generation of deductive 'thematic' codes prior to data collection and use at the initial stages of coding; a flexible approach to code expansion and reduction; and the use of conceptual mapping for codes (and potentially, themes) in order to assist with the identification of demi-regularities and, later, inference

through abduction and retroduction (Fletcher 2017). Fletcher's guidance provided practical tactics with which to operationalise a number of critical realist principles and, further, helped to locate a concrete 'middle-ground' between induction and deduction, for thematic analysis, which is more commonly led by inductive reasoning.

APPENDIX E – INTERVIEW DATA COLLECTION DOCUMENTATION

Semi-structured interview guide

Interview Schedule

Research Project	
Respondent's name	
Position	
Organisation	
Interviewer	
Date of interview	
Data file name	
Data storage location	

Interview Topic Guide

Background	**Question**
Personal Background **A. Employment**	i. Outline your experience working in the acute health sector in Australia? ii. How long have you been working with this organisation and in which positions?
Research Dimension	**Question**
Organisational Background and Performance **B. Environmental Factors** **C. Organisational / Structural Factors** **D. Strategic / Operational Factors**	Briefly outline the history of the organisation over the past ten years. i. Identify and describe environmental contextual issues that have shaped the organisation over the past ten or so years (2005-2016)? (i.e. major policy decisions or changes to regulation or funding). ii. Identify and describe structural factors that have shaped the organisation over the past ten years? (i.e. size, geographical setting, teaching status, network membership etc.) iii. What were the key deficits in organisational capability or key organisational and managerial features that contributed to performance results? At that point in time, what was affecting the organisation's financial position, clinical capacity, culture, managerial competency, systems, governance, structure etc.? Describe the characteristics of leadership that have been influential within the last ten years?

Change Process and Strategy **E. Environmental Factors** **F. Organisational / Structural Factors** **G. Strategic / Operational Factors**	Briefly outline the strategies employed to improve performance over the last ten or so years? i. What were the drivers for change from outside of the organisation? Were there other sources of pressures and influences from other organisations, stakeholders or structural determinants (i.e. network membership, teaching status etc.)? ii. Describe how the organisation has acted to address performance problems in the past ten or so years? What strategies have been used to address the situation? What were the envisaged changes? What were the barriers to implementing improvement strategies? What improvements were delivered? What were the key successes and setbacks? What were the targets and performance issues over that period? How was the strategy or improvement plan developed? Who participated? How were priorities identified? Was there agreement about priorities? Who disagreed? How were the terms and priorities of the strategy negotiated with key external and internal stakeholders? What, in your opinion, should have been included that was not considered? Could you describe the critical episodes in the process of 'diagnosis', 'development' of solutions and implementation of solutions used to bring about performance improvement?
H. Managerial and Organisational Capabilities	i. What organisation functions (i.e. performance management of staff, coordination of work units and between work units, capacity to learn from past failures or successes, control of performance variables, access to and use of information from the external environment, understanding of consumer needs) have been crucial to the performance of the organisation over the past ten years? ii. How has the organisation performed in relation to these functional areas, and how has this changed (if at all) over the past ten years? Can you identify, in detail, the extent to which the organisation's ability to perform organisational functions have been crucial to the attempts to improve performance?
I. Construct Category	Of these three descriptions, which best describes your organisation in its current state: i. A consistent pattern of poor performance; ii. Recent performance improvement; iii. Sustained good performance, following a period of performance improvement.

Information for participants

April 2018 (v.2 following amendment)

HOSPITAL ORGANISATION AND PERFORMANCE

Health Services Innovation Tasmania (HSI Tas) based at the School of Medicine, University of Tasmania, invites you to take part in a study examining the performance of acute public hospitals in Australia, and the association between various organisational practices and hospital performance.

You have been recommended for interview due to your knowledge of the managerial or organisational practices of the hospital and those practices that have been developed or used in order to bring about performance improvement at the hospital.

This research is being conducted by Nelle Seccombe, as part of her PhD based at the School of Medicine.

Purpose of the research

The purpose of this research is to investigate the process by which hospitals are able to improve and sustain performance. Of particular interest, are the organisational and managerial practices that lead to sustained performance improvement.

Your involvement

You are invited to take part in a semi-structured interview, either during normal business hours or after hours, whichever is most convenient for you. The interview will be audio-recorded and will take no longer than 30 to 60 minutes. Your participation is completely voluntary and you are free to withdraw at any time, without giving a reason. You will be provided with an opportunity to review the final interview transcript, prior to data analysis and interpretation.

You may be invited to take part in a follow-up interview, to help validate initial findings from our data analysis. This follow-up interview will again take place at a time and place convenient to you, and will be audio-recorded and transcribed. The follow-up interview is

anticipated to take between 45 and 60 minutes, and will involve the researcher providing a brief presentation of draft findings from the research. You will then be asked to comment on the degree to which your knowledge and experience with the organisation would confirm the draft research findings, and you will be given an opportunity to make suggestions in order to add to or refine the findings. Again, your participation is completely voluntary, and you are free to withdraw at any time, without giving a reason.

Confidentiality, risks and ethics

All information collected as part of this study will be handled in confidence and treated anonymously. Published and unpublished reports will disguise the identities of respondents and responding organisations. This means that any quotation from the participants' response used in all reports and papers will be anonymous. Data collected will be held securely and confidentially at the University of Tasmania, and destroyed securely five years after the publication of research results. This study has been reviewed and approved by the University of Tasmania Health and Medical Human Research Ethics Committee (ethics reference number: H0014592).

Use and publication of the results

The primary outcome of this research is a PhD thesis. It is also anticipated that parts of the thesis will be published in peer reviewed journals and / or in the form of an academic book, and may also feature in presentations at academic seminars or conferences. Data will be treated confidentially and presented as a de-identified data summary, both at an individual and organisational level. Your organisation will be provided with a de-identified report summarising research findings.

Participation and further information

If you wish to participate please contact Ms Nelle Seccombe, email: Nelle.Seccombe@utas.edu.au; mobile: 04.. ... ... to arrange a time for the interview to take place. The researchers will follow this letter with an email and a phone call to confirm your participation and to arrange a suitable time for interview. You may 'opt out' at any time, should you not wish to proceed.

Further information, queries or concerns

If you have any concerns that cannot be resolved with the researcher, you may contact the Health and Medical Human Research Ethics Committee (Tasmania) Network, quoting reference number: H0014592 (Phone: (03) 6226 5520, Email: Healther.Vail@utas.edu.au).

Thank you for your assistance.

Yours sincerely,

Prof Gregory Peterson

Co-Director, Health Services Innovation Tasmania (HSI Tas)

School of Medicine

Ms Nelle Seccombe

PhD Candidate

School of Medicine

CONSENT FORM

HOSPITAL ORGANISATION AND PERFORMANCE

1) I have read and understood the introductory letter for this study.
2) The nature of the study has been explained to me, and any questions that I have asked have been answered to my satisfaction.
3) I understand that the study involves a 30-60 minute semi-structured interview (and the possibility of a voluntary follow-up interview to help verify initial research findings) with a researcher about my knowledge and of the managerial or organisational practices of the hospital and those practices that have been developed or used in order to bring about performance improvement at the hospital.
4) I understand any information provided in this study will be kept strictly confidential.
5) I understand all the data collected in this study will be stored in a locked cabinet or password protected computer in the School of Medicine and will be securely destroyed five years after publication of the data.
6) I have been informed that the results of the study may not be of any direct benefit to me.
7) I agree that research data gathered for the study may be published provided that pseudonyms will be used to ensure no individual data or organisational data is identified, either directly or indirectly.
8) I agree to voluntarily participate in this study and understand that I am free to withdraw at any time without explanation or prejudice and to withdraw any unprocessed data previously supplied.

Name: _____ Date: _____/_____/2015

Email address: _____

Phone number: _____

(to arrange a time and place for the interview)

Signature: _____

Statement by the researcher

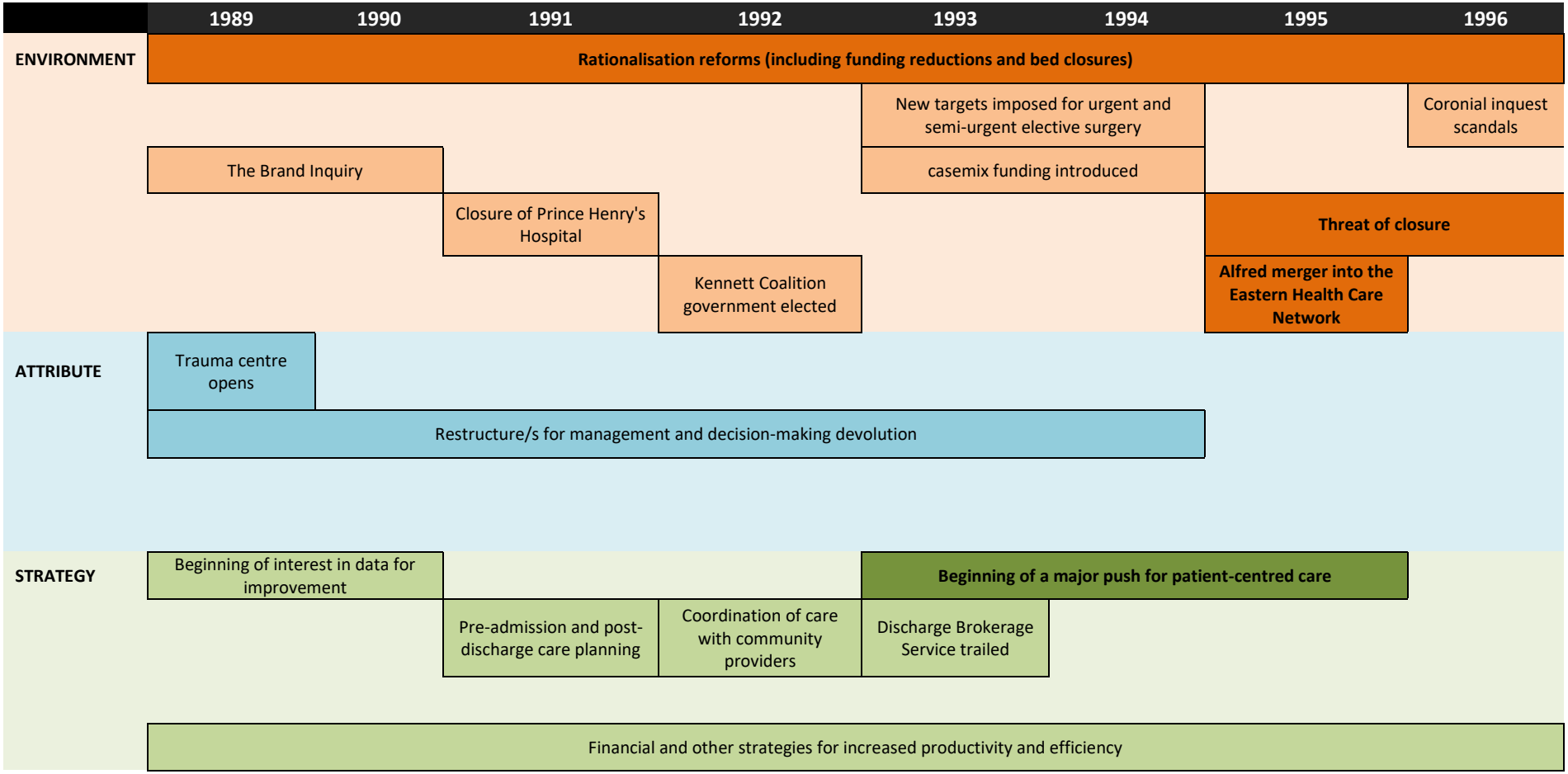
I have explained this study and the implications of participation in it to this participant and I believe that the consent is informed and that he / she understands the implications of participation.

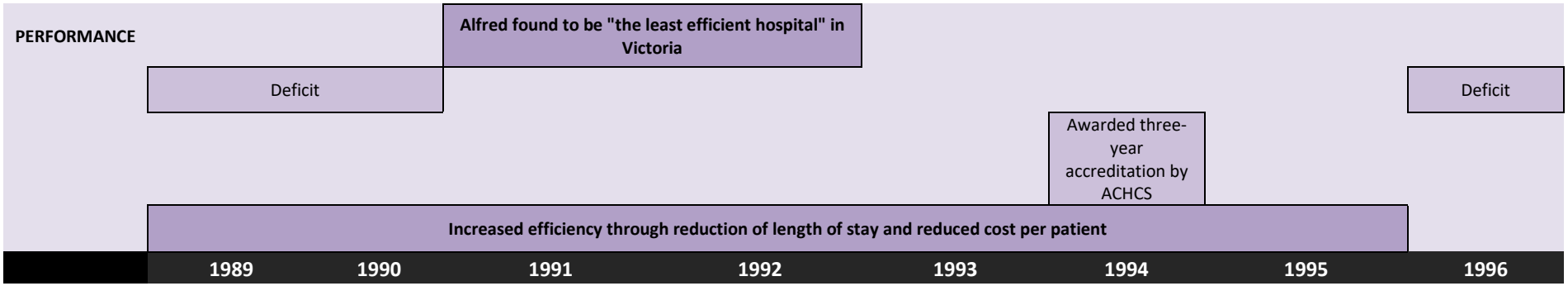
Name of researcher: Nelle Seccombe

Date: _____ Signature: _____

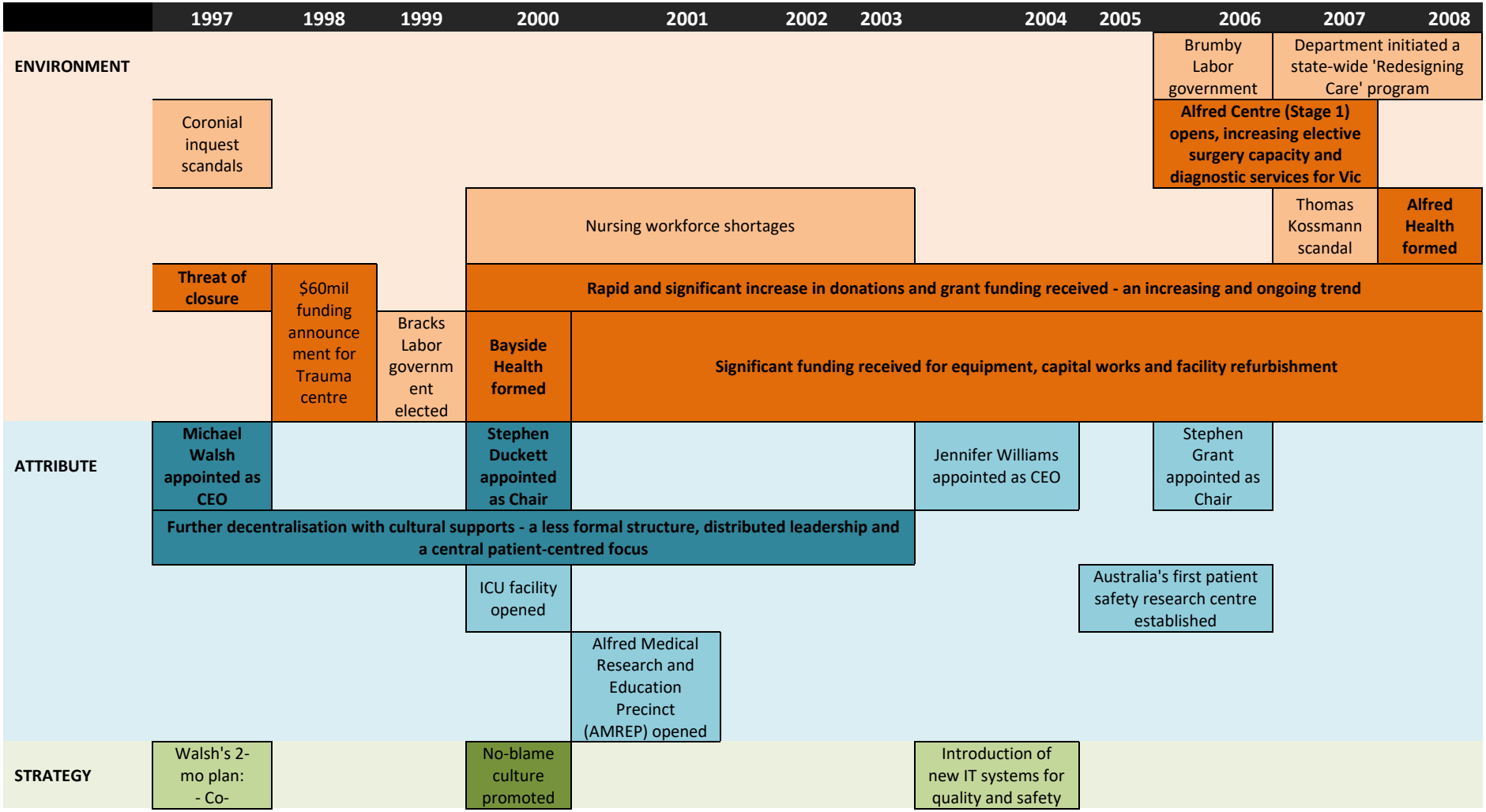
APPENDIX F – DOCUMENTARY DATA

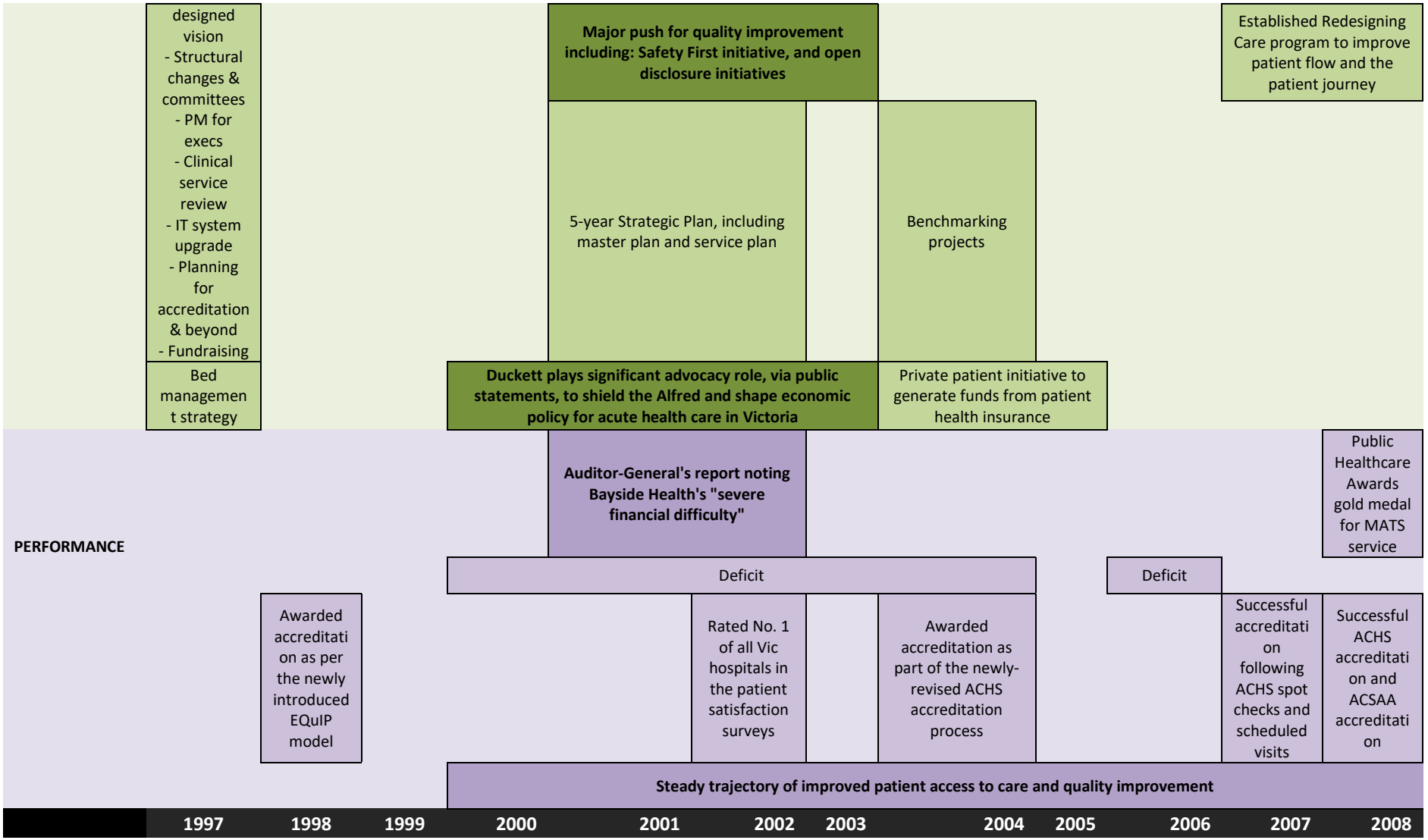
Summary of Key Events Timeline: 1989 to 1996



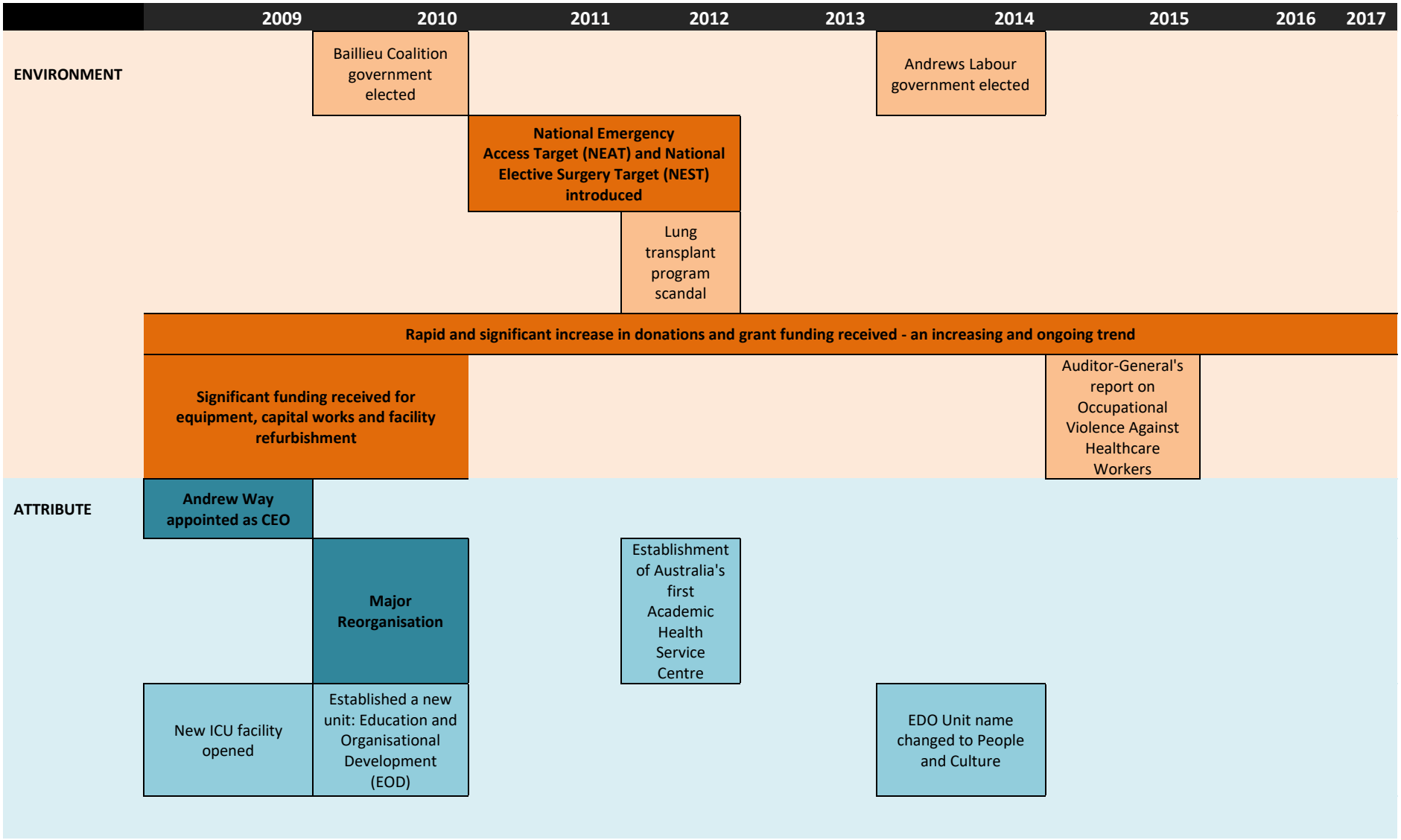

PERFORMANCE
Alfred found to be "the least efficient hospital" in Victoria
Deficit
Deficit
Awarded three-year accreditation by ACHCS
Increased efficiency through reduction of length of stay and reduced cost per patient
1989
1990
1991
1992
1993
1994
1995
1996

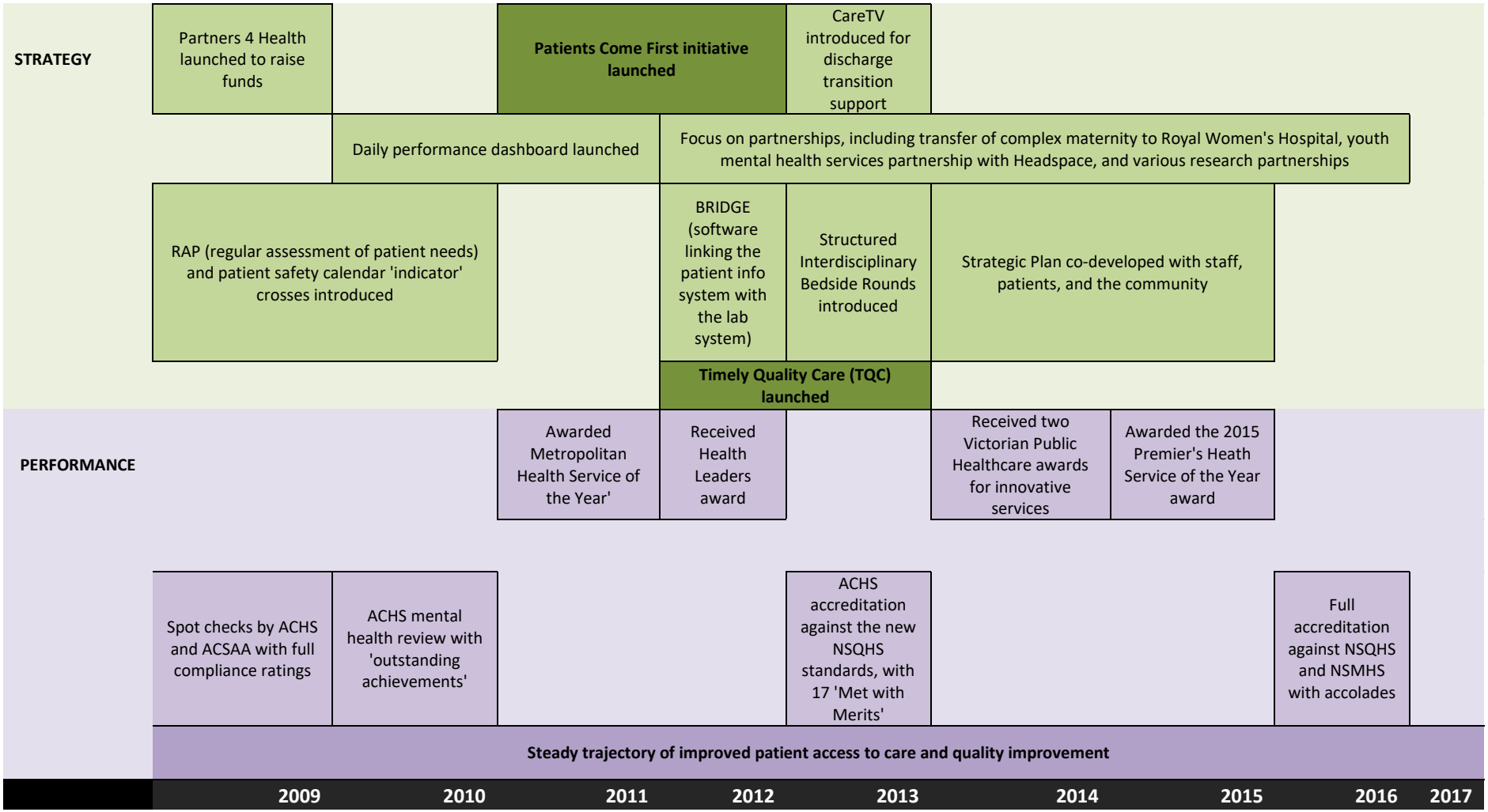
Summary of Key Events Timeline: 1997 to 2008




designed vision
- Structural changes & committees
- PM for execs
- Clinical service review
- IT system upgrade
- Planning for accreditation & beyond
- Fundraising
Bed managemen t strategy
Major push for quality improvement including: Safety First initiative, and open disclosure initiatives
5-year Strategic Plan, including master plan and service plan
Benchmarking projects
Established Redesigning Care program to improve patient flow and the patient journey
Duckett plays significant advocacy role, via public statements, to shield the Alfred and shape economic policy for acute health care in Victoria
Private patient initiative to generate funds from patient health insurance
PERFORMANCE
Auditor-General's report noting Bayside Health's "severe financial difficulty"
Public Healthcare Awards gold medal for MATS service
Deficit
Deficit
Awarded accreditati on as per the newly introduced EQuIP model
Rated No. 1 of all Vic hospitals in the patient satisfaction surveys
Awarded accreditation as part of the newly-revised ACHS accreditation process
Successful accreditati on following ACHS spot checks and scheduled visits
Successful ACHS accreditati on and ACSAA accreditati on
Steady trajectory of improved patient access to care and quality improvement
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008

Summary of Key Events Timeline: 2009 to 2017




STRATEGY
Partners 4 Health launched to raise funds
Patients Come First initiative launched
CareTV introduced for discharge transition support
Daily performance dashboard launched
Focus on partnerships, including transfer of complex maternity to Royal Women's Hospital, youth mental health services partnership with Headspace, and various research partnerships
RAP (regular assessment of patient needs) and patient safety calendar 'indicator' crosses introduced
BRIDGE (software linking the patient info system with the lab system)
Structured Interdisciplinary Bedside Rounds introduced
Strategic Plan co-developed with staff, patients, and the community
Timely Quality Care (TQC) launched
PERFORMANCE
Awarded Metropolitan Health Service of the Year'
Received Health Leaders award
Received two Victorian Public Healthcare awards for innovative services
Awarded the 2015 Premier's Heath Service of the Year award
Spot checks by ACHS and ACSAA with full compliance ratings
ACHS mental health review with 'outstanding achievements'
ACHS accreditation against the new NSQHS standards, with 17 'Met with Merits'
Full accreditation against NSQHS and NSMHS with accolades
Steady trajectory of improved patient access to care and quality improvement
2009
2010
2011
2012
2013
2014
2015
2016
2017

Documentary Database

Extract from the full documentary database for the financial year 1989/90 to demonstrate depth and scale of documentary analysis

	Environment								
		Demography/ Demand							
Financial Year	**Funding**	**Episodes of inpatient care**	**Trauma patients treated**	**Elective surgeries performed**	**Emergency department presentations**	**Other demography**	**Regulation (incl. Accreditation)**	**Reputation**	**Other enviro**
1989/90	• "There is little doubt that, in the near future, there will be the need to some degree, for rationalisation in the services that can be provided with the resources available" • Cash basis for allocation of funding from State and Federal Governments - leading to a lack of recognition	**The Alfred** • Inpatients Treated: 25,951 (Target: 25,700) **CGMC (REC)** • Inpatients Treated: 1,632 (Target: 1,612) **CGMC (GMS)** • Inpatients Treated: 5,137		N/A	**The Alfred** • Outpatient & Emergency Attendance 157,553 (Target: 164,000) **CGMC (REC)** • Outpatient & Emergency Attendance 21,471 (Target: **18,600)** **CGMC (GMS)** • Outpatient & Emergency Attendance 36,905 (Target: 40,000)	**The Alfred** • Registered Beds: 615 • Available Beds: 521 • Bed Utilisation: 90.0% • Av. DRG weight: 1.10 **CGMC (Acute)** • Registered Beds: 129 • Available Beds: 116 • Bed Utilisation: 83.7% • Av. DRG weight: 0.90 **CGMC (Rehab)**	• Auditor-General conducted five efficiency audits (first of its kind in Victoria): cleaning, catering, property management, medical and surgical supplies, equipment, and medical and nursing services.	• Relating to the Auditor-General's efficiency audits - "the reporting process seemed to be directed as much at the media as at Parliament"	• Closure of Prince Henry's Hospital due to occur in Sept 1991 (including closing 266 beds, with uncertainty about replacement) • Proposed government policies to mandate a bed:population ratio of 4 per 1000 (meaning the closure of 211 beds in the Inner South) and 652 beds closed in the Caulfield/Malvern Health District.

	for depreciation of assets and limited opportunities to finance the renewal or replacement of major plant and equipment and buildings. • "The financial resources available to hospitals within Victoria are reducing in real terms. The Alfred Group is no exception." • $184,378.18 funds raised through private fundraising	(Target: 5,067)				• Registered Beds: 150 • Available Beds: 147 • Bed Utilisation: 79.9% • Av. DRG weight: 1.35 • Recognition that service catchment population is older than other parts of Melbourne and is expected to increase by year 2000. Anticipated longer LOS and increased complexity as a result • 40.1% of admissions at the Alfred Hospital			

						come from outside the South East Metro Region, and 18.9% of Caulfield admissions outside of that region • 30.8% and 18.3% (Alfred and Caulfield respectively) admissions are over 70 years of age.			

Attributes						
Resources						
FTE	**Volunteers**	**Capital Infrastructure**	**Structure & governance**	**Leadership & management**	**Organisational culture**	**Other attribute**
• 4,050 (Alfred and Caulfield)		• $17mil Trauma Centre opened at the Alfred Hospital to provide a state-wide service financed by the Transport Accident Commission. • Opening of the Ashley Ricketson Centre at Caulfield (new complex providing allied health services) • Work began on $18.2mil William Buckland Radiotherapy Centre at the Alfred - major multidisciplinary integrated cancer centre. • Noted that 900 additional car parking spaces are required. No government finance forthcoming. The board hopes to cover this cost internally.	• Renaming of the 'Caulfield-Royal Southern Memorial Hospital' to the 'Caulfield General Medical Centre', after staff petitioned for a new name following the merger of Caulfield and Royal Southern Memorial Hospitals under the Alfred Group. • "A major thrust of the Hospital at present is to decentralise management decision-making, with the aim that individual departments and professionals have the responsibility of managing their own functions, therefore participating in the overall management of the Hospital."	• President of the Board is Paul Korner • CEO is William (Bill) Kricker • "There is a need for a more commercial approach to the operation of what is a very large organisation" - this included competitive tendering for new capital investments and tightly monitored maintenance contracts etc.	• Beginning of the "devolution of authority and responsibility to Departmental Units".	

Strategy

Financial strategy	Quality improvement	Innovations & IT	Human Resources	Knowledge & Learning	Other strategy
• As a redress to "deficiencies" reported in 88/89: a new financial planning and control system; including a new system for planning, approving, controlling and accounting for capital developments.		• Recognition that "data to assist in making informed decisions about health care is seriously lacking" and implementation of a project "showing how basic data can be assembled to give new insights into the factors that determine hospital performance".			• Commenced development of new strategic plan, with a focus on service configuration, understanding needs of the local service catchment and state-wide services profile. • Planning studies conducted (as part of a broader Health Department initiative) on health care improvement for older people; closer linkage between day hospital and community; and expansion of podiatry services. • As part of data innovations and projects, a planning model was introduced to provide service forecasts by unit, location of inpatient admissions and bed days to assist Divisions of Medicine, Nursing, Surgery and Clinical Support with budget preparation and staffing etc.

Performance

Financial				**Efficiency**	**Access**	**Quality & Safety**	
Operating result ($000)	**Net result ($000)**	**Net assets**	**Total liabilities ($000)**				**Notes**
-1,971	-12,525	134,632	134,489	**The Alfred** • Bed Days: 169,270 (Target: 172,630) • Average LOS: 6.5 (Target: 6.7) **CGMC (REC)** • Bed Days: 121,257 (Target: 121,537) • Average LOS: 74.3 (Target: 75.3) **CGMC (GMS)** • Bed Days: 35,325 (Target: 37,303) • Average LOS: 6.9 (Target: 7.4)	N/A	• Cardiopulmonary transplantation service (in operation for 18mo) "rank with the best in the world"	• Alfred Group of Hospitals established Nov 1987 with the amalgamation of The Alfred, Caulfield and Royal Southern Memorial Hospitals.

APPENDIX G – INTERVIEW DESCRIPTIVE DATA

Table G-1 Interview Descriptive Data

Interviewee Level of Seniority	**Period of Employment**		
	Survival Period (≤1989 – 1996)	**Resurgence Period** (1997-2008)	**Maturation Period** (2009-2017)
Program Director	X	X	X
Nurse Unit Manager	X	X	X
Senior Executive	X	X	X
Senior Executive		X	
Nurse Unit Manager		X	X
Program Director		X	X
Senior Executive		X	X
Program Director		X	X
Program Director		X	X
Senior Executive			X
Program Director			X
Consultant Physician			X
Program Director			X
Senior Executive			X
Senior Executive			X
Senior Executive			X

APPENDIX H – LIST OF INTERVIEW DATA CODES

Note: the below table lists all codes (both deductive and inductive) developed and used throughout data analysis. The list presents one version of the coding hierarchy that was trialled during the theming process. A final hierarchy was never settled, as per discussion within Section 4.4.2 of the thesis.

Codes

Codes\\Appointing the right staff for the job
Codes\\Balance between hierarchy and heterarchy
Codes\\Balance between hierarchy and heterarchy\Board governance
Codes\\Balance between hierarchy and heterarchy\Clinical governance
Codes\\Balance between hierarchy and heterarchy\Committees
Codes\\Balance between hierarchy and heterarchy\Contra to Heterarchy
Codes\\Balance between hierarchy and heterarchy\Heterarchy (dense)
Codes\\Balance between hierarchy and heterarchy\Heterarchy (dense)\Devolved and decentralised
Codes\\Balance between hierarchy and heterarchy\Heterarchy (dense)\Egalitarianism
Codes\\Balance between hierarchy and heterarchy\Hierarchy
Codes\\Balance between hierarchy and heterarchy\Structure & Governance (attribute)
Codes\\Balance between hierarchy and heterarchy\Top down and bottom up change
Codes\\Belonging
Codes\\Belonging\Collegial
Codes\\Belonging\Continuity of staff
Codes\\Belonging\Happy
Codes\\Belonging\Inspired
Codes\\Belonging\Trust
Codes\\Belonging\Understand the 'other' and their role
Codes\\Belonging\Voice
Codes\\Brand and language
Codes\\Capability (interaction)
Codes\\Clearing the 'dead wood'
Codes\\Clinical service configuration
Codes\\Coalitions for change
Codes\\Collective personality
Codes\\Collective personality\Devotion
Codes\\Collective personality\Devotion\Self-sacrifice
Codes\\Collective personality\Passion
Codes\\Collective personality\Pride
Codes\\Collective personality\Proactive
Codes\\Collective personality\Receptive to change
Codes\\Collective personality\'Striving to be the best'
Codes\\Collective personality\Willingness of staff

Codes\\Coming to terms with change

Codes\\Competition with peer organisations

Codes\\Connecting parts to the whole

Codes\\Connecting parts to the whole\Connections between organisational departments

Codes\\Connecting parts to the whole\Merger

Codes\\Connecting parts to the whole\Networks

Codes\\Connecting parts to the whole\Partnership with peer organisation

Codes\\Connecting parts to the whole\Structural integration

Codes\\Consultants and coaches

Codes\\Context influences strategy (interaction)

Codes\\Developing capabilities for eusociality

Codes\\Developing capabilities for eusociality\Capability for improvement

Codes\\'Don't plant seeds in the desert'

Codes\\Energy

Codes\\Energy\Effort

Codes\\Energy\Enthusiastic

Codes\\Environmental constraint

Codes\\Environmental constraint\Australian context

Codes\\Environmental constraint\Demand

Codes\\Environmental constraint\Demand and volume

Codes\\Environmental constraint\Demography (environment)

Codes\\Environmental constraint\Funding model (environment)

Codes\\Environmental constraint\Government monitoring and reporting

Codes\\Environmental constraint\Imposed regulations or targets

Codes\\Environmental constraint\Regulation (environment)

Codes\\Environmental constraint\Resources

Codes\\Environmental constraint\Unions and industrial action

Codes\\Environmental constraint\Victorian context

Codes\\Environmental turbulence

Codes\\Environmental turbulence\Pressure

Codes\\Environmental turbulence\Scandal

Codes\\Environmental turbulence\Staff turnover

Codes\\Eusociality for the organisational context

Codes\\Evolution of change

Codes\\Executive Management

Codes\\Executive Management\Avoiding government or management jargon

Codes\\Executive Management\Deep clinical engagement

Codes\\Executive Management\Democratisation of decision making

Codes\\Executive Management\Democratisation of decision making\Aggregation

Codes\\Executive Management\Democratisation of decision making\Quorum

Codes\\Executive Management\Engagement of staff

Codes\\Executive Management\'Executive strategy'

Codes\\Executive Management\Expectation that data will produce action

Codes\\Executive Management\Impartial fascination with granular data

Codes\\Executive Management\Leading by example

Codes\\Executive Management\Longevity of team

Codes\\Executive Management\Strong implementation

Codes\\Executive Management\Transparency

Codes\\Executive sponsors

Codes\\'Explosion of ideas'

Codes\\Familiarity with improvement language and methods

Codes\\Favourable conditions

Codes\\Favourable conditions\Consumers articulating needs

Codes\\Favourable conditions\Evolution of notion of 'performance'

Codes\\Favourable conditions\Generational shifts

Codes\\Favourable conditions\Geographical location

Codes\\Financial strategy (strategy)

Codes\\Fit (interaction)

Codes\\Form follows function

Codes\\Form follows function\Building design

Codes\\Form follows function\Division of labour

Codes\\Gaming

Codes\\Group or Organisation Consciousness

Codes\\Group or Organisation Consciousness\Alignment between individual, organisation and community values

Codes\\Group or Organisation Consciousness\Collective principles

Codes\\Group or Organisation Consciousness\Collective vision

Codes\\Group or Organisation Consciousness\Contra to group or organisational consciousness

Codes\\Group or Organisation Consciousness\Contra to group or organisational consciousness\Departmental cultures

Codes\\Group or Organisation Consciousness\Contra to group or organisational consciousness\Disconnection from the whole

Codes\\Group or Organisation Consciousness\Shared responsibility and ownership

Codes\\Group or Organisation Consciousness\System-wide view

Codes\\Group or Organisation Consciousness\Whole of organisation identity

Codes\\Growth for survival

Codes\\Growth for survival\Capital infrastructure

Codes\\Growth for survival\Foundation and Fundraising

Codes\\Growth for survival\Investment from government

Codes\\Growth for survival\Managing a public image

Codes\\Growth for survival\Managing a public image\Public reporting of performance data

Codes\\Hive purpose

Codes\\Hive purpose\Accountability

Codes\\Hive purpose\Accountability\Committed

Codes\\Hive purpose\Accountability\Owning performance and improvement

Codes\\Hive purpose\Accountability\Responsibility to the public

Codes\\Hive purpose\Contra to Hive Purpose

Codes\\Hive purpose\Patient as priority 1

Codes\\Hive purpose\Patient as priority 1\Patient experience

Codes\\Hive purpose\Patient as priority 1\Patient involvement

Codes\\Horizon scanning

Codes\\Human Resources (strategy)

Codes\\Incremental change

Codes\\Innovation & IT (strategy)

Codes\\Knowledge & Learning (strategy)

Codes\\Leadership & Management (attribute)

Codes\\Leadership & Management (attribute)\Independence

Codes\\Leadership & Management (attribute)\Individual change leader

Codes\\Leadership & Management (attribute)\Personal characteristics of senior leaders

Codes\\Localise (interaction)

Codes\\Longevity of message or vision

Codes\\Momentum

Codes\\Momentum\'Keep it fresh'

Codes\\Momentum\Motivators for change

Codes\\Momentum\Trail-blazing

Codes\\Morale

Codes\\Organisational culture (attribute)

Codes\\Organisational development

Codes\\Organisational development\Education

Codes\\Organisational development\Leadership development

Codes\\Performance (general)

Codes\\Performance (general)\Measuring performance

Codes\\Performance (general)\Measuring performance\Access (performance)

Codes\\Performance (general)\Measuring performance\Effectiveness (performance)

Codes\\Performance (general)\Measuring performance\Effectiveness (performance)\Proxy measures for clinical practice

Codes\\Performance (general)\Measuring performance\Effectiveness (performance)\Quality & Safety (performance)

Codes\\Performance (general)\Measuring performance\Efficiency (performance)

Codes\\Performance (general)\Measuring performance\Efficiency (performance)\Proxy measures for financial health of org

Codes\\Performance (general)\Measuring performance\Readmission

Codes\\Performance (general)\Performance trajectory

Codes\\Performance (general)\Performance trajectory\Fear

Codes\\Performance (general)\Performance trajectory\Fear\Anxiety

Codes\\Performance (general)\Performance trajectory\Relationship between clinicians and management

Codes\\Performance (general)\Performance trajectory\Relationship between clinicians and management\Being heard

Codes\\Performance (general)\Performance trajectory\Relationship between clinicians and management\Clear expectations

Codes\\Performance (general)\Performance trajectory\Relationship between clinicians and management\Executive staff visible and relatable to frontline staff

Codes\\Performance (general)\Performance trajectory\Relationship between clinicians and management\Respect

Codes\\Performance (general)\Performance trajectory\Relationship between clinicians and management\Rewards

Codes\\Performance (general)\Performance trajectory\Relationship between clinicians and management\Safe

Codes\\Performance (general)\Performance trajectory\Relationship between clinicians and management\Support from management

Codes\\Performance (general)\Performance trajectory\'Stuck in the old ways'

Codes\\Performance (general)\Performance trajectory\Toxic

Codes\\Performance (general)\Performance trajectory\Toxic\Bullying

Codes\\Performance (general)\Performance trajectory\Toxic\'Dysfunctional' or 'interesting' behaviour

Codes\\Performance (general)\Performance trajectory\'Tribal' identities

Codes\\Performance (general)\Performance trajectory\'Tribal' identities\Silos

Codes\\Performance (general)\Performance turnaround

Codes\\Performance (general)\Performing ahead of the pack

Codes\\Performance Management

Codes\\Persistence

Codes\\Quality Improvement (strategy)

Codes\\Readiness

Codes\\Recognition of a problem

Codes\\Redesign program

Codes\\Reform (interaction)

Codes\\Reputation (environment)

Codes\\Research

Codes\\Restructure

Codes\\Revolutionary change

Codes\\State-wide services

Codes\\Stigmergy

Codes\\Streamline process and services

Codes\\Survival

Codes\\Survival\Threat of closure

Codes\\Survival\Urgency

Codes\\Technology

Codes\\Way of working

Codes\\Way of working\Agency

Codes\\Way of working\Agency\Balance between consistency and flexibility

Codes\\Way of working\Agency\Balance between standardisation and innovation

Codes\\Way of working\Collective behaviour

Codes\\Way of working\Collective behaviour\Challenging the status quo

Codes\\Way of working\Collective behaviour\Team integration

Codes\\Way of working\Collective behaviour\Team integration\Interdisciplinary teamwork and roles
Codes\\Way of working\Collective behaviour\'whatever it takes'
Codes\\Way of working\Collective behaviour\Working 'over and above the call of duty'
Codes\\Way of working\Consensus decision-making
Codes\\Way of working\Consensus decision-making\Communication
Codes\\Way of working\Consensus decision-making\Discussion
Codes\\Way of working\Continuous Improvement
Codes\\Way of working\Continuous Improvement\Dynamic organisational environment
Codes\\Way of working\Continuous Improvement\Opportunities for future improvements
Codes\\Way of working\Emergence
Codes\\Way of working\Emergence\Self-selecting recruitment
Codes\\Way of working\Feedback loops
Codes\\Way of working\Feedback loops\Audit
Codes\\Way of working\Feedback loops\Data analysis for innovation and improvement
Codes\\Way of working\Feedback loops\Data that is relatable
Codes\\Way of working\Planning
Codes\\Way of working\Planning\Adaptation to environmental conditions
Codes\\Way of working\Planning\Alignment with government
Codes\\Way of working\Planning\Long-term vision
Codes\\Way of working\Simple Rules
Codes\\Way of working\Simple Rules\Consequences for poor performance
Codes\\Way of working\Simple Rules\Contra to simple rules
Codes\\Way of working\Simple Rules\Guidelines
Codes\\Way of working\Simple Rules\Rules and routines
Codes\\Way of working\Simple Rules\Rules and routines\Benchmarking
Codes\\Way of working\Simple Rules\Rules and routines\Change management process
Codes\\Way of working\Simple Rules\Rules and routines\Discharge practices
Codes\\Way of working\Simple Rules\Rules and routines\Errors and mistakes
Codes\\Way of working\Simple Rules\Rules and routines\HR policies and practices
Codes\\Way of working\Simple Rules\Rules and routines\Scouting
Codes\\Way of working\Solitarity(eusociality)
Codes\\Workforce adaptation
Codes\\Workforce adaptation\New roles

APPENDIX I – REFLECTIVE MEMOS

Memo #1 HR practices and recruitment (data familiarisation)

Memo #1 written on 14/11/17 during data familiarisation stage.

Several interviewees (of the initial 11 interviews) spoke about the role of recruitment in shaping the culture of the organisation, and the vital role of that culture in creating and facilitating improved performance. Each of the 11 interviewees emphasised how vital having a culture that valued patient outcomes and experience over all else was, in producing positive outcomes for the organisation.

Interviewee HA012 spoke about radical change at the relevant department level over the 16 years of his employment, noting that more contemporary/recent improvement programs (i.e. redesign) would not have been possible in his department at the beginning of his employment. 16 years ago, the department was "disorganised" and there was a "punitive" (p. 1 HA012), "bombastic" culture (p. 3 HA012). The interviewee went so far as to call the work environment he entered "toxic" (p.3 HA012), and observed that staff were "scared to talk... scared to question" (p.2 HA012). Either by active or passive means (moving people on through performance management, or by natural attrition), there was a clearing of the "dead wood" to recruit "new blood" (p.7 HA012) . This was offered as a key explanation for this cultural shift.

I suppose there is an element of societal change - the zeitgeist ('spirit of the times') in which hospital 'patient-centred' care practices are reflective of overarching shifts in societal values. For instance, there are changes at a national (or indeed international) level around perceptions of the 'rights' of individuals, of responding to diversity and the needs of the individual, a reduced emphasis on hierarchy in the workplace, the rise of notions of 'collective leadership', shifts towards consumers co-designing products or services, etc. And these play out across all areas of society - our education system, our welfare system, employment 'rights' with different responses to workplace bullying or workplace accidents, equality of gender, faith, sexuality, etc. But, given that not all hospitals in Victoria appear to have this particular culture and capability (to have truly 'embedded' patient care as top priority across all levels of the organisation), I wonder whether there is something about the HR practices, or the particular people who happened to be recruiting at that time, that may have brought about this lucky turn of events? Were they actively searching for a particular type of person, with a particular type of value? What else may have come into play? Were senior leaders changing their language about culture, recruitment etc.?

Interviewee HA011 spoke about the contemporary (current) experience of (frequently) needing to administer nursing staff recruitment, and notes that out of a large pool of applicants, very few would suitably fit the culture: "I find... the turnover very challenging... it's hard to find... quality nurses that will fit into our culture here... I will get, say, for a standard RN, you know, Grade 2 position... 30 applicants. It gets shortlisted, by HR to maybe say 15-20, and then I always make an effort of trying to interview at least 3-4. But often you only find 3-4 that you think "yeah"... and you might get one." Later in the interview she noted: "... generally, people love it here, it's a great place to work... I would say 90-95% of people are very patient-focused. And I think if you lose that, you're going to leave because you work here, you work incredibly hard, with I think great rewards. But if you are not here for the patient, I don't think people would stay" (p. 6 HA011).

Interviewee HA003 spoke about being attracted to the organisation because: "they had this really strong multidisciplinary commitment. They - general medicine - here seemed to be enthusiastic and

really well supported by the management, and not grossly under-resourced, which was a really common situation for general medicine departments. I really liked the staff, and I really liked [name of line manager]... and I just thought 'Yep, this is the place to be'" (p. 2, HA003). Supporting this, Interviewee HA007 spoke about the self-selection of staff who fit the organisation's culture: "... we're a pretty arrogant, confident, savvy group. That's the group that's attracted to the [name of hospital]. So we're pretty high performing any way, by the nature of who are here [sic]." (p.5 HA007).

So I suppose there may be a two-way mechanism here (which would likely involve or interact with other factors too). There is perhaps an implicit or explicit intention (and action) to recruit a certain type of staff member, and then there is also a self-selecting aspect, so the types of people who are attracted to the organisation may potentially fit a particular profile. I would imagine, having this particular type of person, would make it easier to reach consensus, to build momentum in the organisation etc., and to reinforce cultural values (around patient care as the primary motivator for all actions) and workplace routines that support those values (i.e. structures, committees, actions that contribute to continuous improvement).

Memo #2 Culture (data familiarisation)

Memo #2 written on 15/11/17 during data familiarisation stage.

I am overwhelmed by the prominence of 'culture' throughout all interviews to date. Whether explicitly named up as 'culture' or more implicitly described, culture seems to be, a very prominent topic of discussion. In fact the words 'culture' or 'values' *are* explicitly named up in all 11 transcripts. And the message is so consistent!

For instance:

HA001 talks about an organisation-wide "clarity of purpose" in which "individuals put aside their individual zeal, for the patients' best interest" (p.5 HA001).

HA002 spoke about the organisation as a "happy place to work" and one in which high quality work is done and that there is a collective feeling of pride (p.10 HA002). Examples were given, noting that staff voluntarily coming in on the weekend to complete a task that is vital to patient care, and then the positive effects that this has on performance against key targets. HA003 also noted this, stating that "it's like - you give more hours but you have less anxiety." (p.7 HA003). HA002 also spoke of staff being generally "happy to embrace change" (p.11 HA002).

HA003 mentioned being attracted to the hospital, "Yep, this is the place to be" on the basis of the organisation's strong commitment to multi-disciplinary working, enthusiastic (and likable) staff, well-resourced, and a feel that clinicians were well-supported by management. The respondent also described the common values between colleagues in her department: "we are very committed, and are prepared to put in extra work for - because we sort of believe in what we are doing... I really believe that our focus has always been on 'what's best for our patients" (p.4 HA003). Similarly, noted was "... in the traditional hospitals everyone was enemies... which is so ridiculous because it's like the only reason the hospital is here is for the patient, that's it, there's no other reason but the patient. And so why would we have to have warring factions trying to look after these patients?... that culture, from what I know and from where I work, doesn't exist." (p.6 HA003).

HA004 spoke about the wards, departments and programs that worked particularly well, and the conditions for this: "it's the ones that have those good relationships, and good respect, and trust in each other, and collegial way of working. So the gen med unit is a good example, the stroke unit is probably a good example, and surgical units are probably areas that need - that might not be as progressed as some of those other units. And I think the ones that work well have that good mutual trust and respect amongst the team, that - and everyone has got a valued role in the program." (p.7 HA004).

HA005 commented on a general staff openness: "...it's the learning part of the culture... people are open to concepts" (p.5 HA005).

HA006 spoke about a cohesive, organisation-wide set of principles that "everyone signs up to" and are "pretty broadly known across the organisation... even down to the ward level and service level, you know, clinicians will know what those are and by having those principles and agreement around those principles we've got sort of traction around sort of the new processes and interventions to make those principles real living things" (p.4 HA006). The respondent also noted a few cultural aspects that the organisation is not good at: "[the organisation is] not actually good at giving people positive feedback so I think that's something we've acknowledged that we don't do that well enough. And that sort of played out over the last couple of years and if you were to look at some of

the quality business improvement plans of various programs you'll see that's a bit of a feature that came out of some of that feedback" (p.4 HA006).

HA007 spoke about the transition between campus identity and whole-of-organisation identity: "everyone thinks about all three sites really when they're thinking about the organisation now...there's more accountability. The real answer around a lot of performance is not to take the view of 'this is an emergency problem' or 'this is a general medicine problem'. We're all cohesively responsible so having to acquit performance across the whole continuum of care, I think does make something of a difference... we make decisions based on what's best for the whole organisation and how do we balance all those levers from a whole of health service perspective rather than a campus perspective." (p. 2 HA007).

HA008 observed the importance of "values", particularly "the patient is always... the most important person in the decision-making" and how strongly this was emphasised by senior management (p. 5-6 HA008).

HA010 spoke about the contrast in culture at the organisation as opposed to another hospital that the respondent had worked at 4 years prior. There was "a kind of culture here that just feels like its slightly different... a lot of emphasis on quality... safety... an expectation to be constantly looking for opportunities to improve quality." (p.2 HA010). The respondent said the culture "appealed" to him due to an interest in developing and implementing clinical practice guidelines in his medical speciality. The respondent also noted difficulty in having this culture embedded 100% throughout the organisation due to the use of Visiting Medical Officers (VMOs) (p.6 HA010).

HA011 had worked at the organisation over a very long period and reflected on substantial cultural shifts during that time. In particular, the respondent spoke about the shifting staff identities from a more isolationist (campus, ward/department, profession, or individual practitioner-level) to one in which staff "are stepping out and seeing the bigger picture and realising it's not just about [our ward] having a nice shift, it's about, and I say 'think about ED, they've got people in all the corridors so why can't we go one over if we think it's safe to help them.' So it's working as a team, bigger than just [our ward] team, and I really like that." (p.3 HA011). The respondent noted that "we challenge each other", reflecting on the way that doctors, nurses and allied health staff interact more as a team now (p.2 HA011).

HA012 spoke about a dramatic shift in the department that he had been working in for 16 years. From a "toxic" (p.3) and "disorganised" department with a "bombastic" (p.3) and "punitive" management style and "extreme behaviours from consultants" including "bullying" (p.1 HA012) the current culture was described as one in which management and senior management take "genuine interest" in the day to day work practices, challenges and insights of staff on the coalface. The respondent said "in this organisation you never feel alone and you never - there's always someone that you can get help from... if I feel like I'm in a crisis situation there's always someone I can call on. To be honest, I think I could call on the Chief Operating Officer if I didn't' get help from my clinical service director." (p. 5 HA012). A key focus on patients was described: "...comparing to what it was like 16 years ago, it's certainly much more patient focused which I suppose is what we're here for. It's about the patient and their journey and how to facilitate that journey in a timely [way]... I'm not saying it doesn't put extra demand on you but I think so long as we've got the patient's interests at heart, that's the bottom line" (p.6 HA012).

It was noted by many respondents (particularly those who had been with the organisation for a long time) that the culture wasn't always like this. For instance:

HA002 noted that "morale wasn't all that good when I arrived... it's a much more dynamic place I think than it was" (p.11 HA002).

HA003 noted "huge changes" since beginning with the organisation (p.2 HA003), noting that "we managed to confront a major cultural barrier between the emergency department and general medical departments, and change the culture within our registrars and that wasn't done formally."

HA005 spoke about, fifteen years ago being asked to take up a position in quality improvement and asking "What's quality?... [I] didn't even know what it was." (p.5 HA005). The respondent noted that everything was separate back then - separate 'silos' between the campuses, separate accreditation cycles, separate reporting cycles and separate manual systems and hard processes (p.5 HA005).

HA007 noted that "when I first started there was a little bit of 'us and them' and one of my first jobs was to actually demonstrate that you know there's no 'them', there's just 'us'." (p.2 HA007).

HA008 noted how the culture had changed, over time, from one of parochial competition with a small number of near-by rival hospitals, to one in which comparisons and benchmarking were far more national and global (p.8-9 HA008).

HA011 spoke about major shifts in the daily work of nurses and how this has shaped or has been shaped by changing mentalities: "... it was so different because your job was not holistic when I started. As a junior nurse all I did was wash patients. And then when I was a senior nurse all I did was give out tablets. But now it's so holistic. You do everything. You are responsible for those four patients for eight hours, with support of course. But I think it is really rewarding." HA011 noted the impact of cultural change on patients: "... going back to [when] I started in the early 80's, it was like then you would have people sitting around forever, just waiting... now, as soon as they can, [they] are off... which is great for their journey. So much better than sitting around in an acute system that actually can't give the physio that you need." (p.4 HA011). The respondent also spoke about a less hierarchical approach with more mutual respect between all staff (p. 7 HA011).

Different respondents had different explanations for this cultural change, for instance:

HA002 spoke about the positive impact of "leading by example" and the need for staff to feel as though they were treated "with respect" (p.15 HA002).

HA003 continued to unpack the mechanisms that triggered a change in culture between emergency and general medicine, noting the "reframe" to shift peoples mindsets about patient care. The staff would "roll out of endless meetings" having had an opportunity to "be heard" and air "all their fears". The process was described as not being "top-down" rather, staff felt "heard and understood and attended to" and to enable action management would say "What do you need to make this possible?" (p.3 HA003). The respondent noted the reactions of new staff members upon joining the organisation "it's like a complete shock to them that - our attitude towards taking patients from the emergency department or from other teams. They still have the idea that they should be minimising the amount of patients on their list." (p.4 HA003).

HA004 noted the concerted top-down effort that had been made to change culture and leadership practices: "...we embarked on a fairly detailed process... a leadership development program... key people on each ward from allied health, nursing and medicine came together at points throughout the year and we really did a fairly detailed process around developing the culture around how they work together, what they do, and to try to... develop that team cohesion for them and then go back

to their teams... they were skilled up with some of the productive wards stuff, but that wasn't the focus... it was more around the way they work." (p.7 HA004).

HA005 attributed much of the success to top down targets or regulations (accreditation), structural changes and programs introduced by senior management, and horizon-scanning and staff education (supported and encouraged by management).

To explain the positive workplace culture and common principles, HA006 talked about a "snowball" effect, in which an evolution took place that started to involve more and more staff. Different groups came and "hung off" a central change program to build "more momentum as time progressed". Also adding "...with all these things there's always a little bit of cynicism to start, particularly from clinical staff who have been around a while that [think] 'oh this is the next big thing". I think the other thing that's been really clever is we've tried really hard to keep the jargon out of this as well. So let's not wrap it up in what the latest management speak is, because that really does disenfranchise people I think." (p.5 HA006).

HA007 spoke a lot about "discussion" and "debate" and how the process of coming to decisions through a slow consultation and consensus process, provides a robust result. Also, the respondent talked about a "leap of faith" moving from incremental change to a phase of "big, bold" changes: "it wasn't easy... it took a while for those principles to be bedded down and there was lots of argy-bargy around that and it took a while for us to actually take the plunge" (p.7 HA007). The respondent recalled an unwavering commitment and message from senior leaders who said: "sometimes you just can't let this conversation and discussion shut down. Sometimes you've got to let it run it's course" reflecting also that "people have to sort of think through their anxieties and say no initially and then think oh and then say maybe and then say oh well, you know possibly, and then - well actually let's give this a go to, okay this is a fantastic idea, let's do it." In this sense, HA007 speaks about the evolution of a new culture that builds over time through a pattern of individuals feeling good about doing things differently.

HA008 spoke personally about her efforts to change people's mindsets "the more opportunity I had to go out and talk to other groups of nurses who are basically cynical, the more opportunity I guess I had to hone my skills on 'how am I going to convince this person because I want them to come along and see my way. It wasn't just about saying you are going to do it this way because I was going into other people's environments. That I think probably taught me a lot about how to engage people and how to bring them along with you rather than expecting well I'm putting out a decree and that's the way it's going to happen." (p.2-3 HA008). HA008 also noted the importance of large political events (threat of closure and other shifts in the social and political environment) and attributed change in mindsets to strong yet flexible leaders: "... [name of CEO] is one of these people who's always agitating to do something different... he was willing to listen to people from all levels. It wasn't so hierarchical; I think that was a really big difference." (p. 9 HA008).

HA009 spoke a lot about the importance of 'buy-in' during the process of change implementation and provided some useful examples. Empowerment and buy-in at the coalface, through (sometimes 'stealthy' bottom-up engagement) is crucial for shaping collective values (like putting the patient first) and creating new workplace routines - which are cultural in nature.

HA011 noted a few possible reasons for the cultural shift, including broader societal changes (p. 7 HA011), less emphasis on hierarchical structures (p. 7 HA011), the common vision (or "motto") among staff for "patient-centred care" (p. 8 HA011), the role of education and training (p. 8 HA011), practice development tactics and methods (p.9 HA011), top-down aspirations of senior management to ensure the patient comes first in all priorities and decisions (p.10 HA011), the role of committees,

working groups and other formal structures (p.11 HA011), and the redesign change program (p.13 HA011).

HA012 spoke about a number of elements that may have caused this "massive" cultural shift, including a collective "willingness" to change and to "try new things", which had emerged after the "dead wood" had been removed, either through natural attrition or being "performance managed out" (p.7 HA012).

Reading across all interviews, the respondents have woven 'culture' as a vital thread in forming and reforming the performance of the organisation. What I am struck by, after collecting all of these references together and organising them into buckets of 'current culture' vs 'old culture' and looking at the various explanations that are used to understand this shift - is how interconnected each of these things are. If I were to isolate one of these variables (i.e. say, just looking at societal shifts in values, or just looking at the use of a leadership development program, or just a nationwide policy change etc.) it wouldn't quite make sense. But understanding how these things come together, and how when they do come together 'the whole is different than the sum of its parts' is key to understanding what happened here. The special sauce is in the mix between environment, attribute and strategy. And the glue that seems to stick it all together is how the people in the organisation *feel*. It's a *feeling* of 'common purpose', 'mutual respect' of 'teamwork' and 'togetherness' of 'empowerment' for action, of more 'accountability' but 'less anxiety', of having a voice, and feeling satisfied in a job well done at the end of the day. And when these feelings are shared across an organisation, this seems to enable movement and fluidity, flexibility and change - improvement.

Memo #3 Highlights and early patterns (data familiarisation)

Memo #3 written on 18/11/17 during data familiarisation stage

When I read through the initial 11 interviews, I started a process of noting a few 'highlights' at the top of each transcript after it was read. These were a collection of my thoughts and reflections when I had my 'head inside' the transcript, and are a combination of the things I thought were most important or striking, and a collation of some of the key margin notes or key word that the respondent used.

The below is a bit of an experiment, and it is not supposed to compete with or take the place of coding, but I am just interested to see which of these 'highlight' words have seemed to float to the surface, and how patterns between those words might function. I'm going to do this quite quickly and not try to organise it too much, but draw some links with the ENVIRO + ATTRIBUTE + STRATEGY = PERFORMANCE conceptual framework. Here goes:

PERFORMANCE (WHAT?)
- definition - quality outcomes, access, finance
- financial & gaming
- patient outcomes - risk and audit
- variable performance and problem areas i.e. stroke
- resurgence
- imposed targets (access)
- change in understandings of performance - new measures, new emphasis
- more timely care (access and outcomes_
- technology advancing patient outcomes

ENVIRONMENT (WHY?)
- threat of closure (helped with staff engagement and disarmament)
- influence of state government and politics
- competition with other hospitals to own state-wide service streams
- reputation, creating an attractive organisation to work at - CEO, leadership, track record
- gov targets as useful impetus for improvement (but not necessary and sufficient in itself)
- consumer changes - nature of participation as a patient has changed
- accreditation as good impetus for change - changes in accreditation requirements positive as it keeps the improvement and striving 'fresh' (promoting continuous improvement)
- self-selecting personnel - the sort of people who are attracted to the organisation share some common characteristics
- major context changes - shifts in demography and profile of patients, demand and volume, politics, corporatisation (NMP type shifts)
- partnerships with other like-organisations - movement of services, innovative ways of thinking, partner not competitor, motivated by patients' interests
- government intervention and politics as impetus
- peer orgs are different - feel different
- working with VMOs (outsiders) and difficulty, culturally
- societal values shifting - consumer-orientation etc.
- demographics, demand and increasing acuity can undercut routines - need for flex and pragmatism
- access targets and pressure to discharge

ATTRIBUTE (WHY?)
- common goal/vision (a characteristic of the staff)

- culture of mutual trust and respect
- longevity (of leadership) creating trusting and stable teams
- clinical governance - structures and procedures for quality
- culture of workplace harmony
- leadership from the ground
- two-way feedback loops operating top-down and bottom-up
- research participation and innovation
- transparency (of processes, information, decisions) and shared understanding
- partnership type relationship between clinicians and management - no blame, partners in generating a solution, harmony
- "we" identity and mentality, rather than "us and them"
- whole-of-organisation identity and emphasis
- culture and capabilities enabling redesign to succeed
- capacity to balance standardisation and clear expectations with flexibility and individual responsiveness
- no blame culture - pragmatic approach to problem solving
- structures to create and support accountability, reporting, checks
- redesign tools (enacted by culture)
- momentum for change - tipping point, snowball
- staff 'activated' - work through fear and anxiety, come around, feel good
- alignment between personal, org and community goals, principles and values
- organisational history of motivation and drive - striving to do better, do be the best - manifest in competitiveness and horizon-scanning and characteristics of the CEOs
- CEOs - leadership, modelling, structure, setting tone/culture and expectations, interested in research, innovation, education; there to help facilitate/resource change from bottom-up
- structures and committees
- routines i.e. data monitoring
- more full-time salaried staff, less VMOs (gen med)
- HR processes - leveraging natural staff turnover (reducing 'dead wood' and taking up opportunities to create something different) to create cultural 'fit' between employee and org
- multidisciplinary team working practices and emphasis/culture
- encouraging ongoing education and training (capacity building and growth)
- practice development
- discussion, discussion, discussion (raised so many times by respondents!)
- mantra (constant question that motivates behaviour) - what is best for the patient?

STRATEGY (WHAT and HOW?)
- common goal/vision (creation and communication of a...)
- communication of a clear vision and expectations of staff
- use of data for feedback loops (no blame)
- problem solving together - mgt and health prof's (no bullshit)
- redesign - creating rules and routines
- redesign - feedback loops, expectations-feedback-expectations-feedback...
- planning and intent aligned to common goal/vision
- two-way feedback loops operating top-down and bottom-up
- horizon-scanning - also encouraged at coalface / middle clinical management, by senior management
- open communication
- target areas - i.e. stroke
- innovation
- careful use of language and avoiding jargon and 'management speak'

- rewards and promotions aligned with attitude and participation in leading improvement, not just longevity with the organisation
- mix between top-down and bottom-up tactics for improvement
- elimination of 'silos' and fragmented identities
- merger of campuses - structures, processes and identity
- whole of organisation improvement program
- dashboards to support transparency, accountability, ownership
- capacity building and education for leadership
- pragmatic and collective approach to problem solving supported by no blame culture
- redesign tools (enacted culturally via carefully structured processes)
- major restructure to network campuses
- setting and communicating vision from the top, but with inclusiveness
- responsiveness to feedback (but not reactive)
- using the 'snowball' and momentum for change, reinvesting back into building a bigger movement of continuous improvement across the organisation
- move from small incremental change to bold, dramatic change - using the goodwill and momentum built in baby steps
- move from a parochial competitiveness to an Aus-wide (Roundtable) to global horizon-scanning - adopting great ideas and new better ways of doing things
- engagement practices - respectful, open, honest, shared vision/vision-oriented, patient as centre
- process of improvement is evolutionary - not all tactics can be employed at all times
- finding win-wins
- monitoring and use of data - fascination - look for patterns and create routines
- 'resurgence' in response to threat of closure - found identity, increased standing/profile, won service streams, became proactive, culture then appeals to the right staff
- multidisciplinary 'regroupings', working groups and PDSA cycles to solve problems that arise
- acting on issues as they arise
- recruiting 'new blood'
- confronting and challenging poor behaviours
- collaborative culture

I have had to add in a new category within my conceptual framework, to account for the feelings and experiences of individual respondents, and how they reflect on their own feelings and a sense of collective feeling amongst staff:

COLLECTIVE/INDIVIDUAL EXPERIENCE (WHY?)
- common goal/vision (an individual feeling that purpose and values are shared amongst colleagues and org - being responsible and feeling 'ownership' for outcomes)
- trust and respect (linked to open communication and 'feeling heard' - below)
- data - curiosity, fascination, understanding
- leaders with *personal* focus and interest in quality patient care
- happy, proud, motivated, empowered
- fear and change
- enthusiasm, motivation (linked to rewards)
- feeling 'heard'
- feeling of 'ownership' and responsibility for all patients
- 'living and breathing' improvement
- feeling caring - linked to the shared goal/vision for patient care
- alignment between personal, org and community goals, principles and values
- staff 'activated' - work through fear and anxiety, come around, feel good- staff 'activated' - work through fear and anxiety, come around, feel good

- staff 'activated' - work through fear and anxiety, come around, feel good
- pride - actively seeking to be the best
- feeling like the org is set up for win-wins
- feeling empowered - agency
- peer orgs are different - feel different
- scope of practice (responsibility) huge changes - increased feeling of responsibility
- 'happy' place to work
- feeling able to challenge the status quo - challenge doctors
- from 'toxic', 'disorganised', 'punitive' with 'fear of speaking out' to 'never feel alone in this organisation'
- willingness to try something different
- 'doer's - motivation to act

What struck me, during this exercise, was how difficult it is to put some of these factors into neat categories. If it is a strategy, it is hard to separate the attribute that enabled that strategy, or the environmental impetus that created the urgency to act. The separation of these categories is useful in one respect - to give a sense for the structure of necessary and sufficient factors (i.e. that you often need a bit from each category) - and this is really useful for dispelling the myth that there is 'one' thing, 'one' intervention, 'one' approach that is the magic bullet for change. But on the other hand, the simplification risks masking the very real relationships between these factors. So some of the factors noted above are shared between categories, or I have phrased a particular factor under 'attribute' to emphasise the attribute nature of that aspect, but in 'strategy' I have documented the same thing, but worded from a more active perspective. Or sometimes they are just copied and pasted, shared among the two categories. This is particularly so for attribute and strategy categories, and then with the addition of the 'feeling' category at the individual level of analysis.

Once a sufficient number of people 'feel' a certain way - collectively this seems to become culture (although I'm not sure that this is consistent with many academic definitions of 'culture' but that does not concern me). Culture is more than routines and values, it is *felt* at an individual level, but enacted at the many levels between individual and organisation. I now see this as a very important aspect at the organisational-level analysis, despite my earlier attempts to dismiss individual-level characteristics, I think that individual feelings, when shared on mass, have a large sway over an organisation's capacity to perform. For instance, in the HR literature people speak a lot about absenteeism, which is a measure of individual feelings and health status, but on mass, this has very large implications for a hospital's financial performance and patient safety, and probably access too (particularly when known rules and routines are required to ensure that access targets are met, and fill-in staff are not familiar with those routines and rules). Another example is the dilemma around the use of Visiting Medical Officers (VMOs) - which perhaps disrupts the *feeling* of team-spiritedness, of trust, and of having a shared common goal and organisational identity.

Memo #4 Coding (generating initial codes)

Memo #4 written on 22/11/2017 during the generation of initial codes stage.

After coding the first of the initial 11 interviews, I have a few reflections. First, I'm coding at a more granular level than the deductive codes will allow, so the deductive codes are getting very little use, and there is a rapid creation of new nodes (37 new inductive nodes whilst coding HA001 transcript). This is because, if I were to use the more overarching deductive codes, I'd never be able to 'get back' that level of granularity and descriptive detail.

Also, these more granular, inductive codes, once they are collapsed under deductive codes (which I anticipate most of the inductive codes will), will help me to define precisely what these more overarching notions mean for this particular case site. It will allow me to create abductive definitions of these concepts in the sense that I can reflect on what the literature knows about these notions and how they frame them, but also tailor and describe how this 'fits' with the use and meaning of these words in the local context. I'm being careful to ensure that whenever I create an inductive code a description is inserted into the new code to be clear about what this means in context. This is tricky sometimes because I don't want to be too narrow or specific, but it will also give me the chance to reflect on these definitions carefully when I start merging and collapsing codes into categories later in the process.

In addition - just a quick note on the process I went through to code. I went through the material in NVivo without reference to earlier notes on the transcript and coded as closely to the data as possible. I didn't use invivo codes per se, but I tried to stick to the content in a fairly concrete way (largely 'inductively' as explained above). Sometimes I needed to circle back to an earlier part of the transcript if I realised that a later code that I had created was also relevant to an earlier segment of text. So it was a circular, back and forth motion, a little. After I had been through the whole transcript in NVivo, I then went back to my highlights and margin notes from the hard copies of my transcripts (the ones I read during the data familiarisation stage). I then added new codes, where I hadn't adequately captured something in the more recent coding exercise. After that I then considered some of my deductive codes, particularly the 'interaction' codes to see if any applied to the transcript. I didn't force this, and some didn't apply and weren't used at all, but in some cases they were really relevant (particularly the 'reform' and 'localise' codes), so I went back and coded deductively, where highly relevant. It's handy to be able to capture some of the interactions between factors at this point in the process as working exclusively inductively - I may not have so easily 'joined the dots'. Although saying that - I wonder how many other interactions I might be missing, simply as a result of not having identified these interactions from the academic literature(?). I am very conscious of this balance.

So coding was a fairly lengthy process and I 'took my time'. Again - I am very conscious that it will be difficult to capture this level of detail later, and I can always go through the merging and collapsing of codes into categories, so I'm perhaps over rather than under-coding, and I am really 'investing' in this process to make sure it is thorough. Easy said when it's my first transcript. I may not feel the same way towards the end of the 11th!

Memo #5 Fitting data to codes (coding)

Memo #5 written on 8/02/2018 (based on coding decisions from the week before) during the coding stage.

Towards the end of the coding process for the first 11 interviews, I was frequently torn: "do I create a new unique code that would describe this instance or phenomenon perfectly (but that will clearly not be used by other of these initial 11 interviews, given that they are already coded) or shall I try to fit this data into an often very similar (but not exact), pre-existing code?". It's a tortuous and somewhat circular problem.

Part of me wants to stay as true to the data as possible, and knows that through the abstraction process these similar codes will be linked again, and come together to form more nuanced codes higher up the coding hierarchy. But another part of me wants to be pragmatic, and knows that if I continue to splinter the codes like this, it will make it more difficult to manage. I might forget that I created this code which will fragment the data. Just the sheer mass of codes (165 at the end of coding for the first 11 interviews) is unwieldy enough.

I suppose this is somewhat consistent with the debate or concept of invivo coding. Invivo codes attempt to capture elements of the raw data in the wild - in the specific context of the interview transcript. This is still data abstraction, but less so. Others are more comfortable with data abstraction at an earlier phase of the research.

I wonder what is appropriate for critical realists? In a sense, critical realism already brings quite a significant element of abstraction to the coding process - in the context of deductive or theoretical codes. But this doesn't help me much. This could be an argument to counter-balance that approach with a coding process that follows the data more closely (forming a balance) or on the other hand, it could be argued that critical realism promotes more of a middle ground, and it is quite justifiable to use a coding technique that recognises the pragmatic utility of abstraction throughout. Perhaps it is more important to be aware of whichever path is chosen (and the implications and consequences for that choice), than it is to choose the 'right path'. I'd suspect that Bhaskar would say there is no 'right path' - the truth does not and cannot present itself in words (which are abstractions) and so we must be both pragmatic and aware. Perhaps this invocation of Bhaskar has now answered my question.

Memo #6 Placing codes in a hierarchy (coding)

Memo #6 written on 8/02/2018 (based on the decision-point after completion of coding for the initial 11 interviews)

Several times I have intended to go to my codes and 'clean them up' into some sort of parent code/child code hierarchy, but something has stopped me. It seems like such a limiting step, and one that forces a connection between some codes, thus, diminishing the significance of interconnections with other codes or coding parents. What if a code has two parents (surely not a revolutionary concept!)? How do we, as qualitative researches, adequately describe the interconnections and interdependencies between codes and broad coding categories, if we need a binary yes/no, in/out categorisation process? This problem seems a little unsurmountable, unless I figure out some far more nuanced way of describing parent and child nodes. Perhaps something akin with the 'fuzzy-set' approach used in the qualitative comparative analysis method?

It may take some further thought, but again, this dilemma underlines the difficulty with data abstraction. I'm anxious of losing important data (of profound relevance to my research question) simply to satisfy the data abstraction process.

Memo #7 Coding for the data now or for the future finding (coding)

Memo #7 written on 9/02/2018 (based on coding decisions from the week before).

Another dilemma that raised its head during the coding process, was to what degree I should try to remain naive to the potential future use of the code I am using, whilst coding? In other words, during the coding process sometimes I seem to make coding decisions that accommodate a sort of projection into the future about how this code might be interpreted, used, or might be used most usefully later on in the abstraction process. This in itself introduces more of a deductive element - the inductive data is not necessarily allowed to simply 'speak for itself' it is reinterpreted, to an extent, in light of my envisaged purpose for this data or extract, or anticipating a difficulty in the future using it closer to it's raw form (i.e. for a code that draws on extracts that use that word in very different ways or contexts I try to keep these separate so as not to confuse the integrity of that code - but the word itself was the same...). What kinds of assumptions am I introducing? Does this process encourage me to skip over important information that I might be losing?

But on the other hand, without aligning my coding to some signposts, knowing that I won't have my 'head' inside the meaning of this particular code in the future, I invite a level of chaotic muddiness to the abstraction process, which surely won't be good for the development of a theory or conclusion from my findings.

All of my dilemmas around coding seem to reflect facets of the induction/deduction balance. Very fitting for the critical realist researcher!

Memo #8 Agency and coding at a higher level of abstraction (coding)

Memo #8 written on 9/02/2018 (based on coding decisions and reflections from the week before).

With 34 references (after coding the initial 11 interviews), 'agency' is the most referenced of my 165 codes and has been coded in 9 of the 11 interviews. But unlike codes like 'organisational culture', 'research', or in vivo codes like 'whatever it takes', 'explosion of ideas', 'clearing the dead wood' etc, this word is rarely, if ever mentioned by interviewees. It therefore reflects a decision made by myself, the researcher, to interpret the latent meaning behind someone's words - to fit it to a higher order notion, concept or existing theory. But how do I know that I am not forcing the issue, or looking for evidence to confirm a notion that is already prominent within my mind?

Coding for latent meaning was something raised as an issue by Braun and Clarke (2008) and I remember thinking - 'oh that's an easy decision, critical realists are looking for the underlying meanings and associations behind and between language, so of course I will use latent coding'. I don't disagree with this, but I do feel myself torn sometimes. At times it feels so appropriate to make this jump between the words and the latent meaning, and at other times it feels so much more appropriate to distil someone's insights using the key words or phrase that they chose themselves.

Perhaps it's okay to do both? It's a dance perhaps, sometimes the interviewee leads the dance, and I follow, and sometimes the researcher leads the dance and the interviewee follows - recognising that this particular movement is part of a bigger dance that connects with other people or dance partners, and, having danced with many people (done many interviews) the researcher perhaps has a broader grasp of this overarching dance that is going on. Or is that a bit presumptuous?

So, to check my fears against reality, now I am going to look at the definition of 'agency' and then review the data extracts coded under 'agency' and I will then record my thoughts and observations.

Definitions (10:47am).

Agency (Oxford English Dictionary)

"Ability or capacity to act or exert power; active working or operation; action, activity."(Oxford English Dictionary)
"Action or intervention producing a particular effect; means instrumentality, mediation." (Oxford English Dictionary)

Agency and Structure (Penguin Dictionary of Sociology)

" An important debate in sociological theory concerns the relationship between individuals and social structure. The debate revolves round [sic] the problem of how structures determine what individuals do, how structures are created, and what are the limits, if any, on individuals' capacities to act independently of structural constraints; what are the limits, in other words, on human agency. There are three main positions in this debate:

(1) Some sociologists argue that structures cannot be seen as determining and the emphasis should be placed on the way that individuals create the world around them. Writers subscribing to the doctrines of methodological individualism, ethnomethodology, or phenomenological sociology, mainly take this view; indeed some might even argue that there is no such thing as social structure.

(2) The contrary position is that sociology should be concerned only with social structures that determine the characteristics and actions of individuals, whose agency or special characteristics therefore become unimportant. E. Durkheim was an early exponent of this position. Functionalists often adopt this view, being concerned simply with the functional relationships between social structures. Many Marxists similarly argue that social relations, not individuals, are the proper objects of analysis. Individuals are only the 'bearers' of social relations.

(3) The third view tries to compromise between (1) and (2), avoiding both the idea of a structure determining individuals and also that of individuals independently creating their world. One of the best know theories of this kind is that of P. Berger and T. Luckman (1967). They argue that there is a dialectical process in which the meanings given by individuals to their world become institutionalized or turned into social structures, and the structures then become part of the meaning-systems employed by individuals and limit their actions. For example, if a man and a woman meet for the first time on a desert island, the create their relationship and give it meaning. However, their children are born into the society made by their parents; for them it is a given which constrains their actions to a great extent. Giddens has attempted to overcome the division between agency and structure by means of the notion of 'duality of structure'. He argues that 'structure' is both the medium and the outcome of the actions which are recursively organised by structures. He emphasizes the 'knowledgeability' of actors, who depend on existing knowledge and strategy to achieve their ends. Many Marxists have also sought similar compromise so as to give some meaning to the concept of Class Struggle, conceived as actions taken by individuals or groups of individuals against the determining power of social structures. A more recent approach is Rational Choice Theory."

Data Extracts (11:52am)

So, after reading the data extracts, some are a bit of a stretch conceptually, but most are very relevant to the structure/agency debate described in the Dictionary of Sociology entry, above. This tension between structure, centralised power, control and standardisation contrasted with individual decision making, action, impetus, drive and empowerment is a common topic raised in the interviews. And what strikes me - is that there seems to be a balance. The structure at the case site seems to be set up to demarcate the boundaries within which individuals are encouraged to act with agency. A few good extracts below:

"I think the thing that also struck me is that the most senior administrative level, like the CEO and the deputy CEO, you could tell that there was a kind of harmony there and that, you know, when I came here I didn't sense anyone kind of obstructing aspirations around improving, you know, research and improving the way we deliver our dialysis services which were things I was immediately interested in, that they wanted to embrace it. They wanted to find mechanisms to help not to obstruct really. Because you know the assumption that I probably worked under for many years was that administration were up there kind of thinking of ways to obstruct things not to facilitate."

"I hear my nurses do to the medical staff, and not in a rude way, in a real positive, you know why do you think, or is that the best decision for the patient and then they'll have a great discussion and often it is the right decision but at least the nurse now is 100% satisfied it's the right thing for the patient as well. Not just, that's what the doctor said. Where we would have, I

remember years and years ago, you would just do things that you thought were not probably the right decision because the doctor said it, and you did it without actually having that conversation to understand it. It probably was the right thing, but you might not have understood why or sometimes it possibly wasn't. But you think, oh well I've got to do it, blah, blah and not like yourself for it."

"I think <redacted>, I suppose just historically going back, <redacted> was always an unknown entity. It was always oh my God they're from <redacted>, blah, blah, blah but <redacted>a doer. <redacted>not afraid to take on things and to challenge the norm. It's I think one of the reasons I like to work here is it's willing to change and it's willing to try new things but I think the people that are currently here are willing to take that on board as well. It's not a, oh no I need to, you know, it's not like an opposition, people are going, okay let's give it a go. That's part of what I do is that I just get on with it. I don't need a working party, I don't need a group, I don't need a paper to describe it or anything like that. Let's just get on and do it. If it's about the care and the quality of delivery of care to our patients, let's just do it. So I think that's where TQC and why this organisation does so well because of the willingness of its employees and its management and stuff like that to just get on with the job."

Conclusions:

- Without a degree of abstraction and interpretation, it would have been very difficult to draw out the concept of agency through in vivo codes. Latent coding allows for the implications behind the words to surface and encourages the identification of patterns within the data at close proximity to the original sources, not only at the coded level (which has it's own drawbacks).
- Yes, I probably do have a degree of bias informing my coding decisions. Agency is something that I am interested in, as it was a concept that was raised by an eminent scholar some years ago, when I was discussing my research with him. Our discussion resonated with me, and as a result 'agency' continues to swirl around in my mind. This is okay, I think, as I am no tabula rasa (blank slate). The important point is, as a researcher, I need to be aware of these biases and potential biases, and prepared to test and challenge them frequently throughout the data analysis process.
- Don't trust numbers as an indicator of a code's strength as some extracts are more potent or relevant than others.

Memo #9 Abductive cross-roads (coding)

Memo #9 written on 6/03/2018 (after a meeting with my research supervision team, and further reading – Clarke & Braun (2013) and Braun & Clarke (2014))

Through discussion with my research supervisors, it became apparent that the uncomfortable 'niggles' that I had been feeling (and described in Memo #6, #7 and #8) all seem to lead back to an inherent tension within the abductive research process. That is, that each of these 'niggles' represent a cross-road or decision point, offering a more or less deductive or inductive response to the particular problem of method that had arisen.

For example, in Memo #6, I described my discomfort with the (impending) process of organising my codes into 'parent' and 'child' hierarchies – particularly the problem of whether a 'child' code belongs to just one parent, and whether this binary categorisation process falsely forces an alliance to one parent code (or theme), severing ties with another. The (feared) end result is that this will mask the interconnections between codes (most of them representing factors or determinants for performance) – which is at the very heart of my research question. In short – this is an epistemological issue of method undermining aim.

Redescribing this particular problem, as an 'abductive' dilemma, these cross-roads or decision points essentially force me to approach the organisation of codes under 'parent' and 'child' configurations deductively (relying on my conceptual framework) or inductively (allowing more disparate codes to come together to describe some of the deeper interconnections between the coding 'buckets' used in the conceptual framework).

After discussing this with my research supervisors, the conclusion was to try doing both. This will involve making a copy of my NVivo file and treating one set of codes deductively, collapsing codes under the 'environment', 'attribute', 'strategy' buckets. The other copy will then collapse codes more laterally, inductively looking for patterns to see where interconnections between the buckets existed. I have some 'leads' on this process as per the results of my literature review – in which several pathways of connection between environmental, attribute and strategy factors were mapped and then 'tested' using deductive codes, on my interview data.

Braun & Clarke (2013) offer some useful remarks, here:

"Reviewing themes: Involves checking that the themes 'work' in relation to both the coded extracts and the full data-set. The researcher should reflect on whether the themes tell a convincing and compelling story about the data, and begin to **define the nature of each individual theme, and the relationship between the themes**. **It may be necessary to collapse two themes together, or split a theme into two or more themes, or to discard the candidate themes altogether and begin again the process of theme development**."

"A common feature of a weak TA is using the data collection questions as themes." Maguire and Delahunt (2017) add to this, qualifying this with: **"Typically, this reflects the fact that the data have been summarised and organised, rather than analysed."**

Also, from Braun & Clarke (2014):

"The version of TA we've developed provides a robust, systematic framework for coding qualitative data, and for then **using that coding to identify patterns across the dataset in relation to the research question. The questions of what level patterns are sought at, and what interpretations**

are made of those patterns, are left to the researcher. This is because the techniques are separate from the theoretical orientation of the research."

In particular, it is relieving to see these methodologists advise against using data collection questions as themes. Although my 'environment', 'attribute', 'strategy' buckets weren't strictly functioning as my research questions, the issue of 'organising data' rather than 'analysing data' seems very relevant here. If I were to organise my codes under these buckets, I wouldn't have really analysed anything at all. But at the same time – I think the conceptual framework has great merit and it is important to have this as a basis for the question: 'what is the nature and influence of the interconnections between these environment-attribute-strategy 'buckets' in bringing about the organisational outcome?'.

The end product of the 'well, let's do both!' solution, will hopefully involve later bringing these two analyses back together - perhaps overlaying the theoretical results of the analyses, with one layer setting out the deductive structure (conceptual framework) and another layer that looks deeply at the relationships between the parts of that structure. It might look a bit like when we used to overlay two of those old-fashioned overhead projector slides to add depth to a diagram. Or another analogy might be screen-printing and the way that artists might use red ink as one layer and blue the next.

At a deeper level, this also raises the possibility of three-dimensional research findings. That is – to what degree can we choose to 'live with' or even embrace overlap between categories or themes? Using the analogy above, this might be like overlaying a mix of red and blue ink, with a purple layer to the screen print. Or (given that I promised three-dimensions) perhaps we can start to visualise the capacity for one code, category or theme to link with multiple codes, categories or themes, situated in multiple directions. Like a three-dimensional thematic venn diagram? Some codes may indeed have been used to add substance and clarity to multiple themes.

Thematic overlap seems to be a real 'no-no' in the literature on thematic analysis. Traditionally, themes should be discrete, distinct and definable. And I can understand why. Vague or fuzzy definitions, or indistinct categories can lead to confused findings. Or does it relate to the problem of a theoretical or epistemological pluralism, whereby underlying research assumptions are in conflict and haven't been adequately resolved by the researcher? I can see that this is a real danger. But what if the task were to be approached quite consciously and systematically?

Perhaps each layer/slice/version of the thematic analysis will follow the 'no overlap' rule, ensuring that each 'child' code is only included under one 'parent' category, thus producing distinct thematic categories at each layer. But also, under a different layer/slice/version of the analysis (performed under an identical Nvivo file) these same 'child' codes to be assembled under different 'parents', which would therefore describe a different aspect of the relationship and interaction between the complex set of factors and determinants that brought about a particular organisational performance result? I think the only way to test is to 'learn by doing'. To take the plunge and see what happens!

Memo #10 Splitting hairs (coding)

Memo #10 written on 6/03/2018 (based on hand-written reflections during the coding of the second batch of 5 interviews)

This memo offers a very simple observation - sometimes it appears as though I am 'splitting hairs' when I create a new code that is similar to another that I have created. For example, what is the value in having the three codes: ''tribal' identities, 'silos' and 'departmental cultures'? I feel a little anxious about this sometimes, "Am I splitting hairs?", "Is this going to make the analysis more difficult?", "Is this weakening the existing, related code?".

Having thought a little more about this, I think 'splitting hairs' has its uses (within reason) and although I did it with some hesitancy, I am generally supportive of the creation of new, similar codes, for these reasons:

- 'Splitting hairs' allows me to recognise and pay tribute to the distinct language and intent that came across within each of the interviews. This may also allow me to retain more 'invivo' references, without forcing me to deductively code an excerpt to a pre-existing code.

- When it comes to code collation and theme definition, these similar codes will help me to create a richer, more multifaceted definition, and will mean that I don't have to spend so much time sifting through the data extracts and excerpts to ensure that the abstraction process takes stock of the nuances within and amongst these codes.

From a numerical, 'code-counting' point of view, 'splitting hairs' is a bit of a problem. All the more reason to reduce my emphasis on numerical code-counting. The code with the most votes does not win the prize...!

Memo #11 Existential coding (joke) (coding)

Memo #11 written on 6/03/2018 (based on hand-written reflections during the coding of the second batch of 5 interviews)

This is another fairly simple memo, reflecting on the issue of whether a code refers to the presence or absence of a factor/determinant for performance. My dilemma is - sometimes I have used a code for both. A good example might be the code 'happy'. Most of the data extracts under 'happy' relate to instances in which the person is describing a happy workplace, or staff members who seemed to be happy at work etc, but sometimes I have coded the inverse, in which an interviewee is describing a workplace instance that was not happy. Usually this is related to the performance trajectory of the organisation, for instance, a description of how the experience of workplace happiness has changed over time in relation to a shift in structure, leadership, culture etc.

I wonder - if I had created a new code to capture 'unhappy' as well as 'happy', would this have added value to my analysis? I'm not sure that it would have, but perhaps I will update this memo after I have done more of the data abstraction, as it may become clearer!

Memo #12 Interconnections between codes (coding)

Memo #12 written on 6/03/2018 and modified on 14/03/2018 (based on hand-written reflections during the coding of the second batch of 5 interviews).

This memo is closely related to Memo #9, however it approaches the issue at a more granular level.

Another of my (many) coding anxieties and observations relates to the interconnections between codes. So, for instance, for almost all passages within my transcripts, I would end up coding the same data extract with multiple different codes in order to describe the entirety of the event or phenomenon described.

For example, here is an extract from HA012:

> Well I think, you know, you never - in this organisation you never feel alone and you never - there's always someone that you can get help from. So if I'm feeling challenged or I feel like I'm in a crisis situation there's always someone I can call on. To be honest, I think I could call on the chief operating officer if I didn't get help from my clinical service director but there's also structures in place from a bed management point of view, from a clinical operations manager point of view. But, you know, I believe the current sort of situation and the current managerial structure and the current strategies that are put in place enable me to balance all those demands that I just described before because I've got confidence that someone will help me or someone will help me make the decision or will be willing to direct me if I can't - if I've lost my way. You never feel isolated, you never feel vulnerable and there's someone that I can call on to get help if I need it.

Looking back at the coding for this excerpt, I have used the following codes:

- Clinical governance
- Structure and governance
- Committees
- Support from management
- Shared responsibility and ownership
- Collegial
- Fear

Or another example, from HA002:

> They basically enthuse the CEO with the need for this to happen. So the board members I would think in general, every program has to present directly to the board once a year so some time in the next month or so I'll have to go to the board meeting and present radiology's state of the art. So they're very well informed and they get reports from the program directors on a regular basis. So when they see some initiatives that the board wants to produce, they basically stick it up the CEO and say make this happen. So then the CEO comes down to the program directors after discussing it with the executive and says to the program directors, this is what's going to happen, you guys have to go off and

make it work. So that's sort of how the power comes down to the masses.

Then we have feedback coming back the other way from various meetings when someone says this isn't working it's a waste of time. A good example is infection control. So the board decided that no patient in the hospital should have an infection as a result of an intravenous line. So this is called central [clampsia] is the acronym it's got on it. I'm not quite sure what all the letters mean but basically if you put an intravenous line in anybody and they get an infection you're in trouble. So most of us think that seems pretty reasonable but then the people who deal with the bone marrow transplants and the cancer patients said, "well you know these people haven't got normal immunity and we put a line in and they get a fever and we don't know whether it's from the line or from the urinary tract, whatever, how can we possibly know, we just have to assume that's an infected line and pull it out. We want to be excluded from this process". So that sort of was fed back up to the board as well this isn't going to work and the CEO's view of this was that he didn't care. He wanted a zero tolerance on infected lines which is basically okay because what he's saying is he doesn't care what the cause of the infected line is he doesn't want any. If you have one well then it's bad but he doesn't want to say you can have some.

Codes used for this passage include:

- Structure and governance
- Board governance
- Leadership and management
- Individual change leader
- Strong implementation
- Agency
- Voice
- Feedback loops
- Quality and safety

And a final example from HA015:

Female: I'll give you a beautiful example. HITH, Hospital in the Home, actually this is one that's been written up, <redacted> has written this. So the story in HITH was - HITH in most systems is they're difficult teams because by their nature you want people who are highly autonomous. Nurses, or all experienced nurses, highly autonomous who are on the road, visiting patients increasingly quite - you know patients who would have been inpatients a couple of years ago or years ago, these patients are all being cared for at home. So we want people who are highly autonomous, you know very self directed, basically manage their own days and yet they need to be part of a team. Now their systems were shocking. Their systems they were even - this work was probably about four years ago, their systems were actually fax based. They would fax stuff all over the place. You know if I was going to - I might get a list of patients but there was no understanding of what - of

geography and that. So I might get four patients and I might be going from Sandringham to Ringwood to Toorak to - mad, so the whole thing was mad. Very inefficient and wasteful and people were pretty unhappy about it.

Except for some people it really suited them because they tended to see people just around where they lived which of course if you've been around health for a while, you know that that happens. So the OD unit, <redacted> and we had a woman called Beryl working with us, and <redacted> who was the head - <redacted> was the clinical service director at the time. So they began this process with HITH of restructuring and the union went crazy. Basically because they did it only thinking about jobs. So they said, okay team leader, ward clerks, all these roles and the union objected and said this is a major change, you've got to do it differently, so it broke the rules of how you do major change. So they sort of paused. They had a couple of very difficult individuals who were really good at making a big noise so that - the wheels fell off.

So we said, the OD unit said, okay so we think this is a big piece of work. We actually thought it would take 18 months, but you can never say that. We said it'll take 12 months and this is what you've got to do. You've got to do this deep consultation. You've got to do a co-design with the staff and then you've got to implement it. <redacted> said, we don't have time to do that. We said, well look we really don't think it'll work unless you take this seriously. Because the behaviour that was poor, there were several examples of really horrible behaviour within the unit, nasty emails. Really a whole lot of very unacceptable behaviour and he said, we don't have time. Then within about six weeks, huge amount of industrial action. There was lots and lots of trouble. <redacted> came back and said, we've got time.

Interviewer: He found time.

Female: Well sometimes you've got to do that. So then we started this journey that did take 12 months, a bit longer actually, about 15 months, that <redacted> led which was lots and - really it was an action learning framework, which was at the front end talking to everybody about the role of HITH and doing a sort of visioning process with them. Then we had - then they walked in small groups of about eight or 10. There were about four groups like that and they met every month on their own for a couple of hours and there was also a meeting once a month of everybody. So a big time commitment during that process. During that process these groups were really about, okay what's - and there were themes and all sorts of stuff about how it happened. But the main game was, what sort of place is this going to be? What are we on about here? What is our purpose? Our purpose is to provide excellent care at home and to create a happy, respectful work place.

A lot of the teams worked on really how they were going to sort of develop respectful behaviours effectively. The critical point happened

> about two months in where they started calling out each other's behaviour. That's the first sign of a change in behaviour, when peers start holding each other to account and saying, actually you know I don't speak to her like that or him like that. I don't - it's not acceptable to me and et cetera. So that started to change. A couple of people left, they didn't like it. We got some - and things changed. So over 12 months, and that's the team people want to work in now, it's a really happy team. But it takes that long. So if you want to really, fundamentally change things - during the same time processes were changed, systems were changed, we got a new workflow around how work is allocated, how they supported each other on the road, how they touched in at the beginning of the day and the end of the day, what the expectations were of leadership and so on.
>
> Sort of every element of the system, whatever framework you want to use was directly impacted. They are really - they were so proud of themselves, wonderful. It's wonderful.

A large number of codes were used to describe this story:

- Pride
- Collective principles
- Discussion
- Clear expectations
- 'Dysfunctional' or 'interesting' behaviour
- Challenging the status quo
- Unions and industrial action
- Coming to terms with change
- Capability (interaction)
- Collective vision
- Connections between organisational departments
- Deep clinical engagement
- Change management process
- Redesign program
- Organisational development
- Context influences strategy (interaction)
- Accountability
- Engagement of staff

These examples help to illustrate some of my methodological anxieties.

Story vs codes vs themes

'The whole is different from the sum of its parts'. That is - the (extensive!) list of codes under each data extract describe the story being told, but if this list were to be removed from the story, and then used in place of the story, they would not, in and of themselves, adequately capture the true essence of what is being conveyed by the interviewee. Rather than being a potent distillation of the story, the codes appear to be some sort of pale, watered-down approximation.

Taking this further, even if all I was left with was the list of codes, the thematic analysis process would then separate this list and treat each code independently. There is no capacity to retain the

unique configurations of codes that relate to a particular data extract/story and use these in the analysis. In contrast, for the purpose of my study, it is very important to map the interconnections between these codes. One of my primary questions is essentially: what (if any) patterns exist in the way that various determinants/factors come together to impact on performance? I have done some of this factor interaction mapping already, using deductive codes that emerged from my literature review, but I feel as though some further inductive work may be needed to look at these factor-interactions and potential recurring patterns, before taking the leap from coding to themeing.

The ineffable
Returning to my point above, I feel as though something is lost in translation from rich text to reduced code. Or perhaps I haven't done a very good job when I coded the extracts? I struggle to understand how I could have summed up these passages in just one or two words or phrases. These data extracts (stories) are as messy and complicated as they are rich and valuable. The concept of 'ineffable' (an inability to describe something in words) is relevant here. Perhaps the English language just doesn't have the words to sum up these passages neatly? This is a frightening prospect for me! And perhaps there is more work involved in looking at these passages and seeing if I can distil them, rather than water them down.

Distillation - is it a process of addition or reduction?
The 'agency' example given in Memo #9 appears to be an example of the capacity for coding to be additive as opposed to purely reductive. In a sense coding is capable of both - building and reducing. The code 'agency' took many smaller stories and examples from the data and made sense of them by applying an interpretive/latent meaning - thus building from the data. Whereas, in many of the cases above, I haven't been able to find a word or concept that quite captures the stories or events, and so the codes function to reduce rather than build.

But maybe building is more of a theme-creation process than a coding process (I'm not 100% sure)? Isn't the purpose of coding to reduce and simplify first, before a process of reconstruction takes place in order to build theory or understanding? If so, my challenge is how to ensure that the richness of these stories aren't lost between the cracks when I commence the theme-creation process. Initial theme creation (as per my methodology) is entirely reliant upon codes rather than data extracts. My sense is that the codes themselves will not be adequate for this process.

The solution...

So - having aired out some of my anxieties, and explored them from various view-points, I am now sketching a bit of a 'what next' plan of attack:

- The (potential) issue of the ineffable/indescribable is very daunting and I think ultimately insurmountable within the boundaries of this research project. The ineffable is better suited to painters, sculptors and poets. Before I concede defeat, however, I would like to do some further work to check that I have coded these dense data extracts as carefully as possible. Perhaps there is still room to distil rather than water-down? The simplest way to do this might be to print out copies of the transcripts with 'coding stripes' and 'highlights' and to focus on passages in the data that appear to have a high volume of coding overlap (an indicator of complexity perhaps?). If I am lucky, I may then be able to apply an additional code that describes the interconnections between the list of codes (the unique configuration of factors as relating to that particular story) through an inductive process. These codes will be the inductive equivalent of the deductive codes titled '(interaction)' that emerged from my literature review.

- After doing this, the task (perhaps in the theming stage?) would then be to look at any recurring patterns in the way that these configurations of codes tended to appear. Or perhaps this is a coding matter - I will need to check back after this initial process has been completed.

Memo #13 Coding for coding density

Memo #13 written on 20/04/2018 (at coding for coding density/ inductive-interaction coding stage)

The process of targetting areas of high coding-density and then looking for inductive meaning emerging from the interconnections between these codes, is nothing short of illuminating. It is essentially a process of searching for latent meaning, rather than being satisfied with explicit, concrete, or easily categoriesed lists of codes. The question is: what is the interviewee *really* trying to convey here? What are the patterns between passages of this type, and between interviewees? What is really going on? A constructive rather than deconstructive process. And as I have written about in earlier memo's, a process that I feared wouldn't be possible if I were to simply begin mapping and organising the codes under a hierarchy - divorced from the rich content of the interviews.

To begin with I found it quite difficult. I was metaphorically scratching my head - and initially I found myself trying to place emphasis on particular existing codes, like 'trust' or 'respect' rather than seeing the overarching interconnection and meaning between the codes. But then I started seeing more. For instance, in HA002, I had originally coded the following passage with 'agency', 'board governance', 'individual change leader' and 'structure and governance (attribute)':

"Male: They basically enthuse the CEO with the need for this to happen. So the board members I would think in general, every program has to present directly to the board once a year so some time in the next month or so I'll have to go to the board meeting and present radiology's state of the art. So they're very well informed and they get reports from the program directors on a regular basis. So when they see some initiatives that the board wants to produce, they basically stick it up the CEO and say make this happen. So then the CEO comes down to the program directors after discussing it with the executive and says to the program directors, this is what's going to happen, you guys have to go off and make it work. So that's sort of how the power comes down to the masses.

Looking at 'what is really being said here', I arrived at 'democratisation of decision-making' as a useful way of describing what had been conveyed. And then I began seeing this new latent code apply elsewhere too. Had I simply 'mapped' the codes, context-free, I don't think this insight would have been possible.

The process then began to take shape and build a momentum of its own. I began noticing many instances in which interviewees spoke about the case site as 'not very hierarchical'. This was mixed with codes like 'agency' and 'individual change leader', or in which interviewees spoke of highly cooperative and collaborative systems with trusting and respectful communication between all levels and all staff groups. Not being 'hierarchical' allowed groups of individuals to start working together, in a way that suited them, to make improvements - consistent with the overarching goal of timely, quality, care.

I was reminded of a conversation I had had with my brother over Christmas. I had been trying to give him a summary of the important findings from my research-thus far. I remember that the words 'hive mentality' had just popped from my mouth, seemingly without really being processed by my brain. I remember thinking - 'wow, that's interesting, I hadn't thought of that'.

And so I began using a new code 'hive mentality' to describe these sorts of passages:

HA001

Male: The next thing I would say is that a clarity of purpose has existed here for a very long time, so um, the single (pause) drive of the organisation to do the best it can and as always, is really important, and I think it is different for other places because here is the organisation to do the best that it can, um, people, not always, but individuals will put aside their individual zeal, for the patients' best interest, so wanting to be the best in your speciality, if it actually overall harms something that might be of benefit to patients, people will manage that. So some of our research agenda, some of our education agenda, is compromised so we improve the patient focus. And that is consistent"

HA003

Female: The other thing is that I feel – I really believe that our focus has always been on what's best for our patients, so – and I think that that has – because you know, I have been completely cynical about management and considered them the enemy when I started working here, just like many people do, many clinicians do. But I have been quite impressed actually by how real the commitment to the patients is.

Interviewer: How is that demonstrated by management?

Female: Really robust and responses to mishaps. They – if we can show better outcomes then we get those programs resourced. If we can make a good argument for there being not enough staff to look after X number of patients, then that will be resourced and taken seriously. Any program that we come up with to improve our treatment of any particular problem, like for example behaviours of concern or you know the management's approach is, "Tell us what you need to make the situation for these patients better, and we will do our best to give you what you need."

HA007

Male: Well it does mean that there's more accountability. The real answer around a lot of performance is not to take the view of this is an emergency problem, this is a general medicine problem, we're all collectively responsible so having to acquit performance across the whole continuum of care, I think, does make something of a difference. So, you know, previously <redacted> would have had to have negotiated with the general manager at <redacted> in terms of resource allocation, now that is <redacted> call. As an example at the moment at the peak of winter demand we have to make decisions about do we open extra beds at <redacted>, what are the costs of opening those beds in terms of the financial position of the organisation versus issues around demand. So rather than this just being, we think about this just from the <redacted> perspective, we make decisions based on what's best for the whole organisation and how do we balance all those levers from a whole of health service perspective rather than the campus perspective.

It was a coming together of these sorts of codes:

- shared responsibility and ownership
- collective principles
- collective vision
- silos
- whole of organisation identity
- rewards
- patient as priority 1
- agency
- trust
- being heard
- relationship between clinicians and management

And then, in true abductive fashion, I started looking at the 'hive mentality' metaphor from a deductive rather than an inductive perspective - that is, reading about ants, bees and other 'hive' species to understand more about how they work, and whether the typical behaviours of some of these species might help to understand my codes. I discovered that ants and other hymenoptera species have tendencies towards:

- minimal overarching governing structure
- the division of labour
- communication between individuals
- collective behaviour that is decentralised and self-organising
- the ability to solve complex problems

I also came accross some other concepts of interest:

Dense heterarchy
- Higher levels affect lower levels and lower levles eventually influence the higher levels.
- Feedback loops and communication in a heterarchy, can produce 'emergence' not obvious when only examining singluar activities or communications.

Eusociality
- Co-operative 'brood' care
- overlapping generations of workers
- division of labour

Looking to the academic literature to see how this metaphor may have been applied by other researchers I found some mention of 'swarm intelligence' in organisation studies with several publications, including a book, in around the year 2000. Thereafter, a large volume of work has been taken forward by computer scientists (i.e. mathematical algorithms such as 'ant colony optimisation'), but not general organisation scientists, and little in the field of health.

All metaphors are imperfect, and I don't believe this metaphor to be immune, however it is certainly helping me to make sense of the rich data that I have.

Memo #14A Hive mentality: relating metaphor to the literature

Memo #14A written on 26/04/2018 with the removal of the opening paragraph for the creation of Memo #14B on 28/04/2018 (during coding for coding density with abductive/retroductive search of the relevant academic literature)

During the process of 'coding for coding density' - in which I targeted all passages from the raw data that had a large number of overlapping codes, the 'hive mentality' metaphor arose again. It arose as my attempt to find a suitable code to capture the complex inter-relationships between the overlapped codes was not an easy task, and the metaphor sprang to mind again, and I began seeing the data and patterns in the codes in a different and more connected (less 'shopping-list') way. I then went to websites that described ant and bee colony behaviour, and came across some key concepts that resonated (at least partially) with the data, and gave me a more precise language with which to describe the interconnection between some of these codes:

Ant societies tend to have:
- the division of labour
- communication between individuals
- the ability to solve complex problems

Swarm intelligence tends to have:
- no overarching governing structure but with 'collective behaviour', 'decentralised decision-making', with a 'self-organised system',

The concept of 'dense heterarchy':
- relating to the distribution of power, higher levels affecting lower levels and lower levels eventually influencing the higher levels
- the use of feedback loops and communication to produce 'emergence' not obvious when only examining singular activities or communications

The concept of 'eusociality' (vs solitarity) encompasses:
- co-operative brood care (involving self-sacrifice for the group)
- overlapping generations
- the division of labour into specialised behaviour groups
- but: eusociality is costly to maintain; can only persist when ecological variables favour it
- and so there is a degree of plasticity of eusocial traits in response to environmental cues

I then considered passages of coding density in light of these very basic (closely related to their biological source) concepts. Later, I then undertook a more comprehensive search of the academic literature, and after some searching, found two very important articles. One is a review article on 'swarm intelligence' and the other reviews 'collective intelligence'. As I discovered the two phrases have often been used interchangeably, however more frequently 'swarm intelligence' relates to the biology, ecology and computer science literature, and 'collective intelligence' is more common when examining humans.

Krause, Ruxton and Krause (2010), 'Swarm Intelligence In Animals and Humans' *Trends in Ecology and Evolution*, Vol 25, No. 1, pp. 28-34, introduced me to a full set of very important concepts:

Glossary
Animal personality: often also called the 'behavioural syndrome', refers to the observation that there are correlations between behaviours in different contexts (e.g. a bold individual behaves boldly in different situations).
Biomimetics: the study of nature in search of principles that can find technological application.
Cognitive ability: mental information-processing ability in connection with

problem solving.
Collective behaviour: the mechanistic aspect of grouping; mainly used for self-organised grouping behaviour that is usually characterised by synchronised individuals.
Combinatorics: a branch of pure mathematics concerned with counting the number of ways in which a set of given objects can be arranged.
Confusion effect: following multiple moving prey individuals can cause sensory overload in predators, which results in delaying attacks or in reducing attack success.
Consensus decision: agreement among group members on one course of action.
Encounter-dilution effect: if groups are not detected and attacked in proportion to their size, then grouping can result in a reduced per capita predation risk (provided the predator only kills one prey item per attack).
Many eyes effect: predator vigilance generally increases with group size owing to the fact that more individuals are on the look out.
Prediction market: processing of information obtained from interactions of multiple individuals with the aim of predicting developments.
Quorum: a threshold number of individuals that, once reached, will initiate copying in others.
Self organization: individuals follow local behavioural rules, resulting in organised behaviour by the whole group without the need for global control.
Swarm intelligence: two or more individuals independently collect information that is processed through social interaction and provides a solution to a cognitive problem that is not available to single individuals.

So I discovered that my 'metaphor' was in fact an example of 'biomimetics'. The definitions of 'collective behaviour' and 'consensus decision' also resonated with me and my understanding of the synchronised practices and capacity for group decisions at the case site. In particular, the driving force behind group decision-making as one, single motivating factor - patient care - comes across very strongly in the data. I thought the 'many eyes-effect' may have had an interesting association with vigilance for safe practices within the hospital, and there were a small number of very pertinent passages in the data that might support this. The concepts of 'quorum', 'self-organisation' and 'swarm intelligence' also resonated. Quorum seemed to help describe instances of momentum for change and innovation, with some instances to be found within the data. 'Swarm intelligence' was readily found within the codes on 'communication', 'discussion' and 'horizon scanning'. 'Self-organisation' resonated very strongly, with many examples in which individuals operated with their own emergent 'agency' within the boundaries of organisational rules and routines - well known to the staff. On the flipside, however, I also noticed quite a few examples from the data that would suggest more of a top-down, leadership-driven rather than 'emergent' strategy. The article authors' final conclusion helped to make sense of this, within more of a human-social setting:

Potential consequences of SI research

The finding that the judgment of a diverse group can outperform an expert or even a small group of experts under certain circumstances [51,52] has led to speculation that SI developments could make experts obsolete to the extent that even company CEOs might be in less demand in the future [10]. However, this seems unlikely. We predict that a shift might be seen in the type of experts that are needed, towards experts who know the mechanisms to harness and implement SI. Company leaders might need to learn the means to utilize SI principles, but SI is unlikely to replace leadership by a collective that steers itself. SI is more probably a mechanism that provides additional guidance in making decisions.

Why is this so? In social insects, for instance, the individuals might collectively be able to solve cognitive problems. However, even when they have arrived at a solution, a single ant or bee is never going to be in possession of the overall information (or solution). By contrast, humans can purposefully set out to use SI principles to their benefit to gain, for instance, a competitive advantage in business (by better predicting market developments). The point is that the whole SI mechanism (data collection, processing and solution) can be used by single experts (or expert teams). Therefore, the user potential of SI in animals and in humans is fundamentally different in this

respect. In animals, SI acts as an enabler for a group of often highly interdependent individuals; in humans, it can be an enabler as well as a tool that can be used to aid decision making.
In conclusion, the evidence from animal and human societies does not necessarily indicate that SI automatically replaces leadership [31,38]. Nevertheless, the continued investigation of SI is beginning to lead to a re-examination of the relationship between the collective and its leadership, be it the voting citizenship of a democratic country and its government, the shareholders of a company and their board of directors or the fan base of a football club and its management. Therefore, it seems only fitting to close with a quote from the ground breaking article by Galton [8] who said: 'This result [the excellent collective estimate] is, I think, more creditable to the trustworthiness of a democratic judgment than might have been expected.'

The other publication that was of high value and relevance was a conference proceedings paper Saliminen (2012) 'Collective Intelligence in Humans: A Literature Review' Presented at Collective Intelligence Conference.

The author undertook what could be described as a rapid scoping review methodology with the aim of identifying the sorts of concepts and content of the discussion that appeared in the literature, and organised recurring 'themes' of discussion under micro-level, macro-level and emergent-level categories. This resulted in a table, from which the following information is extracted:

Micro Level

Humans as social animals	Viewing humans as social animals: immersion of self in a social network a typical human condition	Pentland 2006, Pentland 2007
Intelligence	The intelligence of individual human beings, often measured with the g-factor	Woolley et al. 2010
Personal interaction capabilities	The factors affecting a person‟s ability to interact with other human beings, such as emotional intelligence (Cherniss 2010), social sensitivity (Woolley et al. 2010) and the general factor of personality (Just 2011)	Woolley et al. 2010, Woodley and Bell 2011
Trust	An actor‟s expectation of the other party‟s competence and goodwill (Blomqvist 1997)	Bosse et al. 2006, Scarlat and Maries 2009
Motivation	The factors influencing the interest to participate in communities or to contribute to collective effort	Franck 2002, Rasmussen et al. 2003, Bonabeau 2009, Lykourentzou et al. 2010, Brabham 2010, Malone et al 2010
Attention	The commitment of cognitive resources	Zembylas and Vrasidas 2005, Zettsu and Kiyoki 2006, Gruber 2007, Trianni et al. 2011
Communities	Real and virtual communities, such as communities of practice and online social networks (Cachia et al. 2007) and brand communities (Brabham 2010)	Coe et al. 2001, Cachia et al. 2007, Chen 2007, Lykourentzou et al. 2010, Brabham 2010

Each of the 'micro level' factors (except perhaps 'intelligence') resonated strongly with the data. In particular, the code 'trust' appeared to be densely connected within important passages from the data.

Emergence

Complex adaptive systems	Systems that show adaptivity, self-organization and emergence (Ottino	Komninos 2004, Chen 2007, Luo et al. 2009, Schut 2010, Trianni et al.

	2004)	2011,
Self-organization	The emergence of order at the system level without central control, solely due to local interactions of the system‟s components (Kauffman 1993)	Bonabeau and Meyer 2001, Franck 2002, Rasmussen et al. 2003, Wu and Aberer 2003, Luo et al. 2009, Krause et al. 2009, Schut 2010, Trianni et al. 2011
Emergence	A rise of system level properties that are not present in its components; “the whole is more than the sum of its parts” (Damper 2000)	Rasmussen et al. 2003, Chen 2007, Cachia et al. 2007, Luo et al. 2009, Schut 2010, Lee and Chang 2010, Woolley et al. 2010, Trianni et al. 2011,
Swarm intelligence	The study of cognitively (relatively) simple entities, whose collective behavior is intelligent	Bonabeau and Meyer 2001, Wu and Aberer 2003, Krause et al. 2009, Luo et al. 2009, Trianni et al. 2011,
Stigmergy	A mechanism of indirect coordination, originally describing the nest-building behavior of termites (Theraulaz and Bonabeau 1999)	Bosse et al. 2006
Distributed memory	The shared, often external, dynamic memory system that performs parts of agents‟ cognitive processes (Bosse et al 2006)	Bosse et al. 2006, Scarlat and Maries 2009, Gregg 2009, Luo et al. 2009, Levy 2010, Trianni et al. 2011

Many of the 'emergent' factors appeared relevant to the case site data. Certainly, 'emergence', 'self-organisation' and 'swarm intelligence' as described above, were highly relevant. 'Distributed memory' made me ponder, and I'd imagined there may be some support from the data for this - particularly the memory of the 'threat of closure' that seemed to play an important role in the history of the organisation's performance improvement. I didn't quite know what 'stigmergy' really meant from the above description, so I noted it for further research. 'Complex adaptive system' gave me an interesting in-road to complexity theory, which had failed to make it into my literature review, due to the lack of published review articles on complexity and hospital performance - despite my best efforts to locate a review article.

This was perhaps one of the great pitfalls of my literature review methodology and it's role in this research - that is - that because I reviewed only review articles, I clearly missed some very important theory. And therefore, the deductive/theoretical codes that I used for my thematic analysis of case site data missed theoretical perspectives like 'capabilities' (from the resource-based view), 'complexity theory', 'systems theory' and 'complex adaptive systems theory'. Ironically, the aims of my research are more consistent with these theoretical frames as opposed to the more reductionist single-theory approaches like 'leadership' vs 'accreditation' vs 'lean thinking' in trying to understand the 'why' and 'how' of hospital performance over time. But, perhaps the saving grace for my literature review was that it was constructed from a very pragmatic 'decision-makers' viewpoint, with the assumption that articles or theoretical perspectives not included within reviews of the literature, would not often make it to the desktops of policy-makers and health and hospital administrators. This in itself is an important message of my research.

Macro Level

Decision making	The process of making decisions, both individually and in groups	Pentland 2006, Bonabeau 2009, Malone et al. 2010, Gregg 2010, Krause et al. 2011
Wisdom of crowds	Under certain conditions, groups can be more intelligent than the smartest individuals in them; a collective estimate can be accurate, even if individual estimations are not (Surowiecki 2005)	Chen 2007, Pentland 2007, Nguyen 2008, Krause et al. 2009, Brabham 2009, Lykourentzou et al. 2010, Leimeister 2010, Lee and Chang 2010, Brabham 2010, Lorenz et al. 2011,
Aggregation	The combination of individual pieces of information to form a synthesis or collective estimation	Pentland 2007, Bothos et al. 2010, Krause et al. 2011,
Bias	The tendency of individuals and groups to make systematical errors in decision making situations	Cachia et al. 2007, Gregg 2009, Lee and Chang 2010, Krause et al. 2011
Diversity	The differences in demographic, educational and cultural backgrounds	Bonabeau and Meyer 2001, Bonabeau 2009, Brabham 2010, Krause et al.

	and the ways that people represent and solve problems (Hong and Page 2004)	2011
Independence	The decision of an individual is not influenced by the decisions of other individuals	Lorenz et al. 2011

Many of the macro-level concepts also resonated very strongly with my knowledge of the data. The balance (or tension) between 'executive' and 'bottom up', group emergent decision-making (using 'aggregation', multidisciplinary 'diversity' and the 'wisdom of crowds') comes across clearly in the data. I am less sure about 'independence' and 'bias' as notions that would be supported by the data that I am analysing - but this may be due to the fact that the case site demonstrates a positive rather than negative trajectory of performance.

I then followed up the literature for 'complexity theory', 'systems theory' and 'complex adaptive systems'. Unlike 'swarm intelligence' and 'collective intelligence', I was aware that these concepts have more currency within the health service academic field. I found a fairly old but very useful chapter in a book summarising and describing some of the key concepts of complexity as they relate to healthcare:

'Complexity Principles' in Healthcare pp. 618-619, as identified by Zimmerman (2011) 'How Complexity Science is Transforming Healthcare' in Allen, Maguire and McKelvey *The Sage Handbook of Complexity and Management'* Sage Publications, pp. 617-635:

" - *Emergence* is the appearance of outcomes in the form of new structures, patterns, processes at the system level that are unpredictable from the components that created them through their interactions. In healthcare, emergence has been crucial in recognizing the role of uncertainty and surprise from each of a public policy, clinical and organizational perspective.
- S*elf-organization* is order created internally through the interaction of components, rather than directly by an external force or individual institution. Recognition of the importance of self-organization challenges the command and control paradigm which has dominated health-care since the early twentieth century.
- *Distributed control* arises when there is no central controller for a system such that design and management of the system is distributed. A departure from most Western medical and policy approaches, intervening in contexts of distributed control requires looking at the patterns across a system and between systems rather than for searching for single point causes.
- *Feedback* is the reciprocal effect of one subsystem on another subsystem or larger system.
- *Negative feedback* has a dampening effect on deviations or changes whereas *positive feedback* has an amplifying effect. In healthcare, this has important implications for policy makers and clinicians as they assess their interventions and impacts.
- *Minimum specifications* are also known as *simple rules.* They refer to a small number of guidelines that typically determine the design and functioning of a complex system. This notion is used both inductively to understand what rules of interaction are shaping the current system and deductively to identify new rules of interaction which could create a healthier system (clinically or organizational).
- *Sensitive dependence on initial conditions* (or the butterfly effect) is a property of a complex system in which small changes have a disproportionate or *nonlinear* impact. Hence the past is a crucial part of understanding the trajectory of a system. In healthcare this principle is often translated into a rationale for *context-specific* solutions.
- *Connectivity* in complex systems favours *relationship-centred* approaches to understanding and managing them because the connections or relationships between 'parts' of a system are key to its functioning. Rather than changing the parts, the focus becomes on recognizing *interdependence* and connected *networks* that need to be changed.

- *Fractals* are geometric patterns (temporally or spatially) that exhibit *self-similarity* across scales, also known as *scalar invariance.* In healthcare, the recognition of fractals requires looking at data at multiple scales to diagnose problems and prescribe solutions.
- *Embedded or nested systems* refers to how systems exist within systems such that change often involves the *co-evolution* of systems. This has been extended to include *co-creation of meaning* in healthcare organizations."

Comparing this list of 'complexity theory' key principles with the key principles or areas of discussion relating to 'swarm intelligence' and 'collective intelligence' I could see a high degree of alignment and overlap. Although, noting that there were some specific (relevant) concepts described by one viewpoint, and not the others. The case site data might appear to benefit from the deductive input of all three of these 'lists' in order to help frame or understand the latent meaning underlying the data. For instance, the issue of 'trust' and 'motivation' is central to the data, however was only described within the collective intelligence article. This might be due to the very surface review of the literature that I have conducted, thus far, or it may be a product of the differences between these perspectives (I'm sure I will find out!).

But if I were to view these lists of principles as equally weighted items on a 'shopping list', I feel I would be making a grave mistake. I suppose the abductive and retroductive task ahead, is to organise the pertinent factors and processes - to consider the varying degree of emphasis upon one factor and the mechanisms of interplay with others - and how this unfolded over the course of the organisation's performance history.

Following the process of 'coding for coding density' the sense of a collective purpose, that is, the common pull to achieve excellent patient care, seems to be at the very heart of it all.

Memo #14B Hive mentality: a metaphor for retroductive consideration

Memo #14B written on 26/04/2018 with additions made and removal/editing of some text from Memo #14 to form Part A and Part B on 28/04/2018 (coding for coding density with consideration of retroduction).

After introducing the 'hive mentality' metaphor, I have had some anxiety about whether this was appropriate or justified as per my methodology. In part my uncertainty is about the 'origin' of this metaphor. For instance, as outlined in Memo #13, the 'hive mentality' metaphor arose quite unconsciously. I now hesitate to say 'inductively' as the notion of 'metaphor' is seemingly in contrast with our understanding of induction. That is, to apply a theory about a previously observed phenomenon to a new phenomenon is arguably a form of deduction. On one level, I believe there is a difference between the conscious and unconscious application of a metaphor, and this has implications for where on the abductive spectrum the use of this metaphor may be placed. In essence, the metaphor did not occur through an intentional/overt attempt to search for or locate a new metaphor or a new deductive frame; rather, it arose quite spontaneously during an attempt to describe the preliminary findings of the research - in an efficient way, and to a 'lay' audience.

Despite this, I still felt a little uncomfortable about introducing a new deductive frame, after having introduced, in a very systematic way, many deductive codes at the beginning of my research (stemming from the results of my literature review). In essence, the uncomfortable question in my mind is: does the introduction of this new metaphor/deductive frame signal my use of a less-systematic method? How do we account for 'inspiration' within science and research?

Returning to my draft methods chapter, I was relieved to find that my stumbling upon or producing a new metaphor in this way, is consistent with the 'retroductive' process:

"'Retroduction' involves the conceptual bridging of structure and events. Fundamental to this process are the questions: What must reality be like for the observed event to have occurred? What mechanisms must exist? (Wynn and Williams, 2012 p. 799), and finally "what makes [the phenomenon of interest] possible?" (Wynn and Williams, 2012 p.800). Retroduction attempts to draw inferences about possible causal mechanisms acting between and within the explicated structural components (and their constituent properties and tendencies), to bring about the events and outcomes of interest. Retroduction is distinct from 'induction' and 'deduction', rather, it may favour one tactic, or the other, or both, depending upon the pragmatic value offered. For instance, **the retroductive process may begin with a consideration of existing theorised mechanisms to examine their relevance and fit for the specific case, or, where existing theory is not useful, new mechanisms may be conceived in direct response to the data.**

In light of the creative and intuitive nature of the retroductive process, Wynn and Williams (2012, p.800) are sceptical about the value of specific or prescriptive guidance on the task. They note, however, that various well-respected analytical approaches can be used in ways that are compatible with the critical realist retroductive principle (and process), including: Eisenhardt, Glasser and Strauss, Miles and Huberman, Pettigrew, Strauss and Corbin and Yin. **Retroduction, they advise, is iterative in nature, and is useful during both data collection and analysis (i.e. corroborating interviews, coding, within and cross-case analyses, process modelling etc.), and may illuminate numerous potential mechanisms, operating at different levels within a given case. Therefore, the primary goal is to produce "the most complete and logically compelling explanation of the observed events given the specific conditions of the contextual environment"** (Wynn and Williams 2012 p. 800). This is perhaps also the broader task of researchers collectively, who may work together, or separately, to reveal knowledge of 'the real', which is rendered more accurate, with time."

Further, in Tony Lawson's chapter within 'Critical Realism: Essential Readings', he states (on page 156):

"... the central mode of inference is neither deduction or induction. Rather it is retroduction. The aim is not to cover a phenomenon under a generalisation (this metal expands when heated because all metals do) but to identify a factor responsible for it, that helped to produce, or at least facilitated, it. The goal is to posit a mechanism (typically at a different level to the phenomenon being explained) which, if it existed and acted in the postulated manner, could account for the phenomenon singled out for explanation. **Not much can be said about this process of retroduction independent of context other than it is likely to operate under a logic of analogy or metaphor and to draw heavily on the investigator's perspectives, beliefs and experience.**"

Lawson goes on (p. 157):

"We have seen that economics and the social sciences generally are denied the crucial test situation. However, the consequence of this *for the process of theory assessment* is merely that event-predictive accuracy cannot be the criterion of theory selection. Rather **the appropriate criterion outside of the controlled-experimental (or any fortuitously spontaneously closed) situation must be *explanatory power*. Theories can be assessed according to their abilities to illuminate a *wide range* of empirical phenomena. And typically this will entail accommodating precisely such contrastive demi-regs [demi-regularities] as are recorded or can be found.**

Several aspects to the process of assessing a theory's explanatory power can be anticipated. The first relies on deduction. The point is to **deduce from any retroduced hypotheses those consequences or effects which would follow if they hypothesis were true and the mechanism operative.** The second involves **checking out the various deduced consequences empirically.** With a permanent possibility of countervailing factors there can be not guarantee that any such effects will be straightforwardly manifest. But the aim must be to try and identify conditions where, in the light of all that is known about the situation, the effects ought in some way to be in evidence. A third aspect to the process involves **explaining the explanation. It includes identifying the conditions of any explanatory mechanism and checking they are or were operative**."

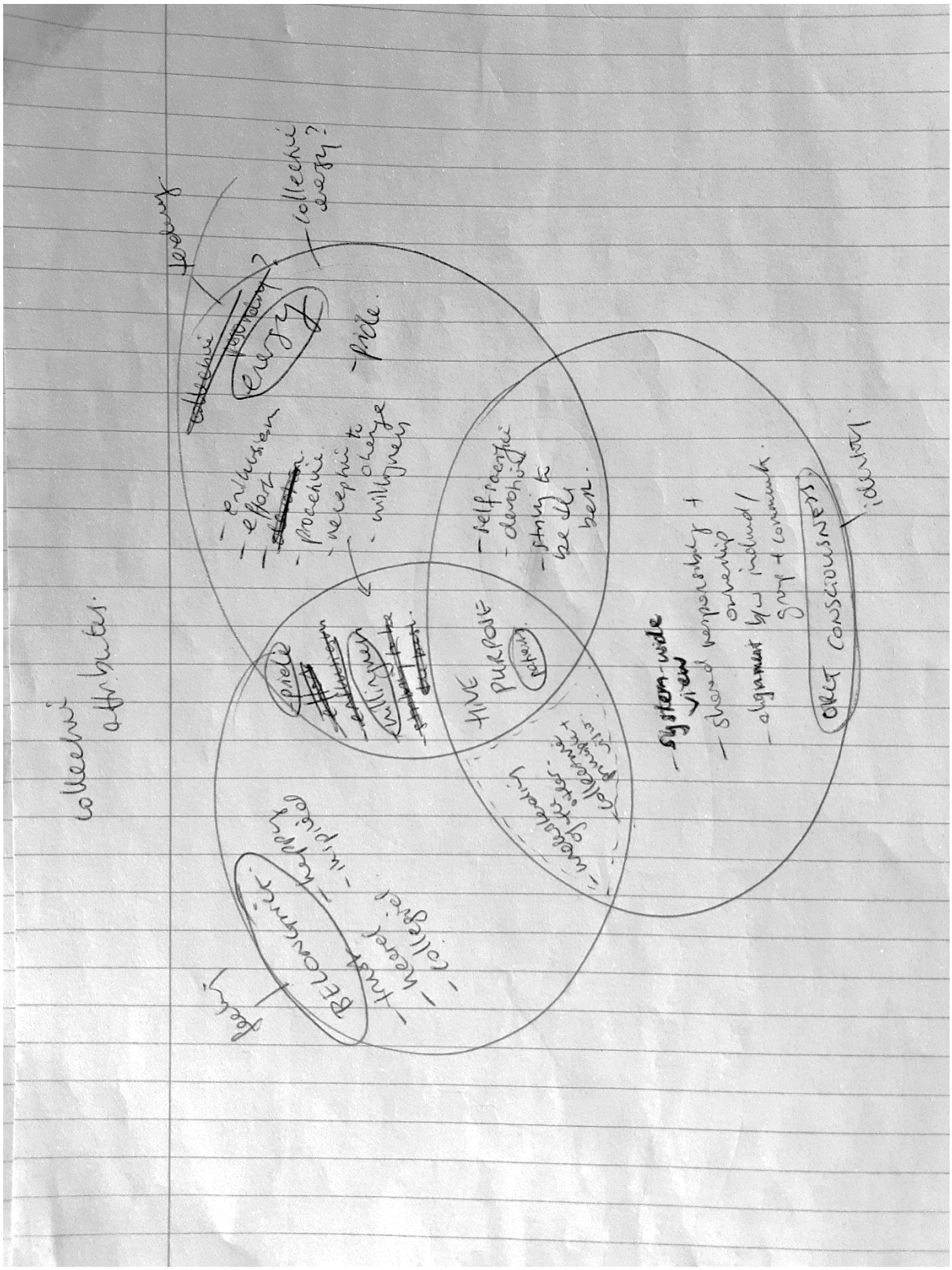
On reflection, and after having read these passages, it seems quite natural that I would have responded with anxiety to the 'hive mentality' metaphor springing forth from inspiration rather than a more 'systematic' treatment of method. I am now reminded of the 'aha' moment that I described in Memo #9, in which I discovered that the several 'niggles' with method that I had been experiencing were of themselves characteristic of the broader abductive process - in which I was confronted with whether to err towards induction or deduction at various decision points of the research. In this same vein, my anxiety here, is about the peculiar ontological-epistemological placement of critical realism, as balanced between what would be considered methodologically 'systematic' positivism and 'meaning-laden' interpretivism. First, I afforded myself the production of an abstract interpretation, and second, scolded myself for not adhering to a more positivist sense of replicable method.

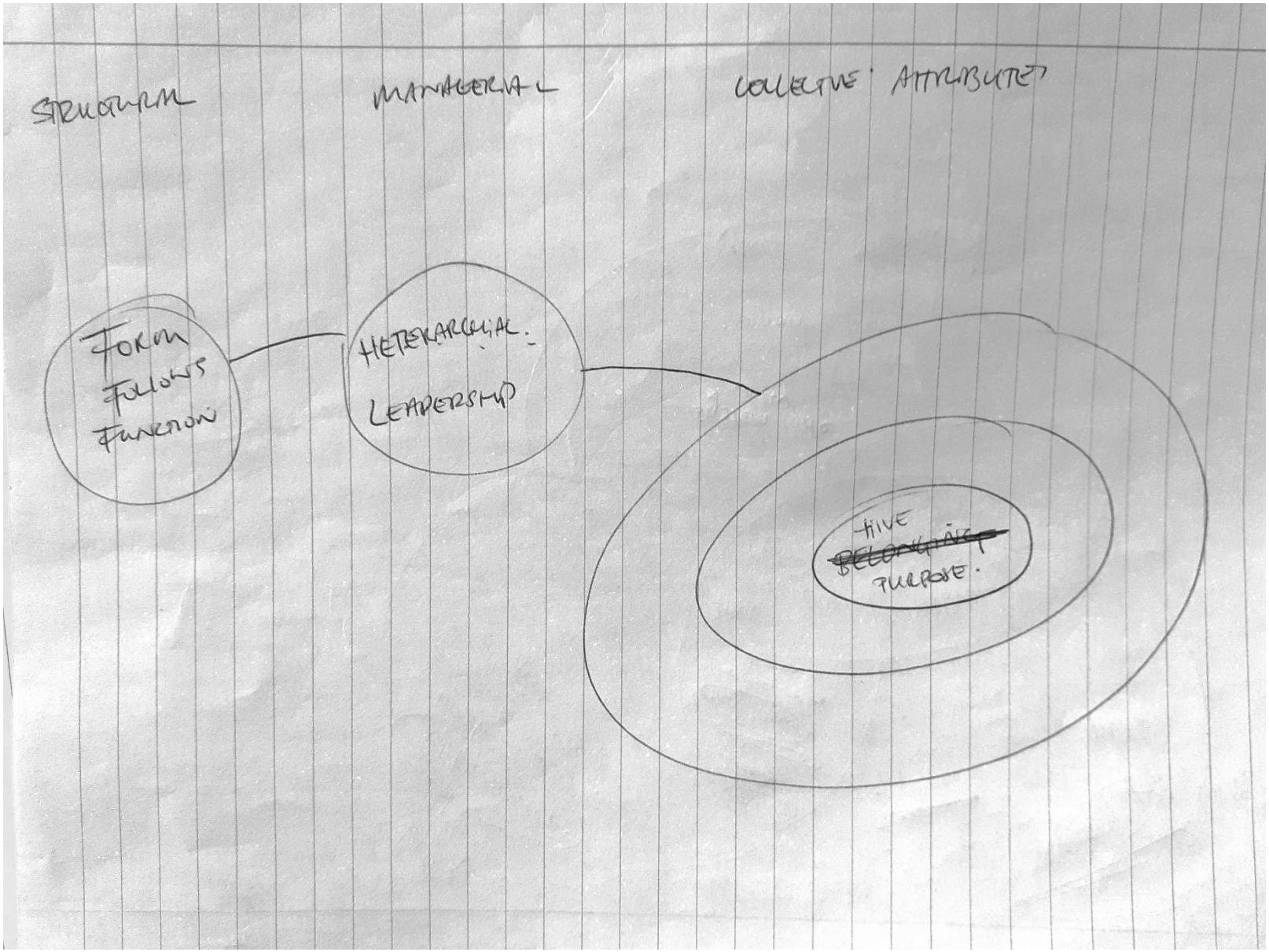
But I see that, despite inner-conflict, my research decisions and experiences (i.e. inspiration) are indeed consistent with the critical realist framework chosen for this research. On one level I am relieved, and on another, I feel rewarded - my somewhat tortuous efforts to get to the bottom of this dilemma have again shed further light on the common methodological conundrums inherent to critical realist research. These methodological conundrums may be further expanded and expounded in response to several calls for better guidance on critical realist method, and may in turn help to guide future critical realist researchers to navigate this sticky territory. I hope that

bringing a little more methodological clarity to critical realist research, will be an important part of my original contribution to the literature.

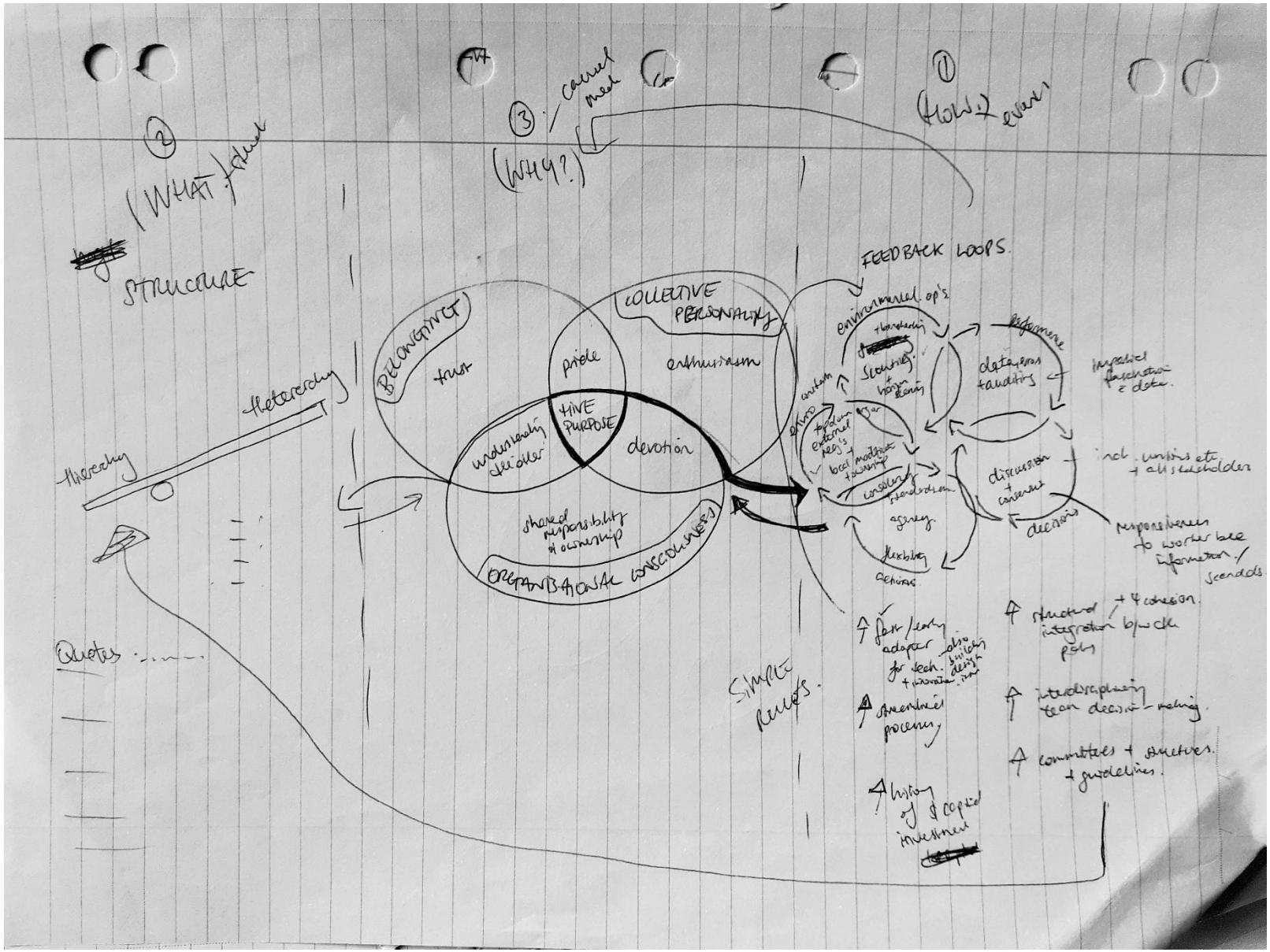
APPENDIX J – DIAGRAMS GENERATED DURING THE RETRODUCTIVE THEMING PROCESS

Note: diagrams are presented in chronological order of development

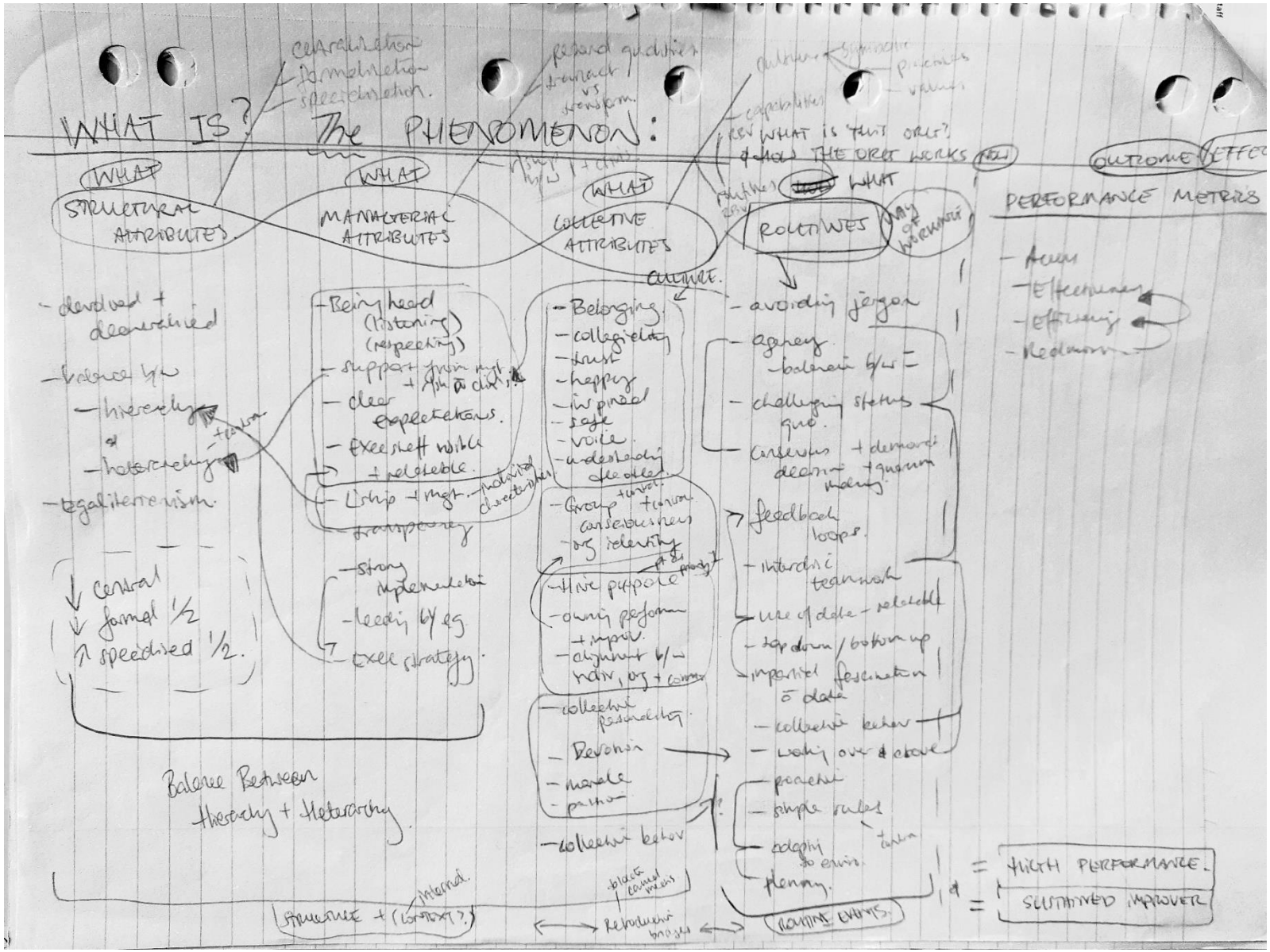


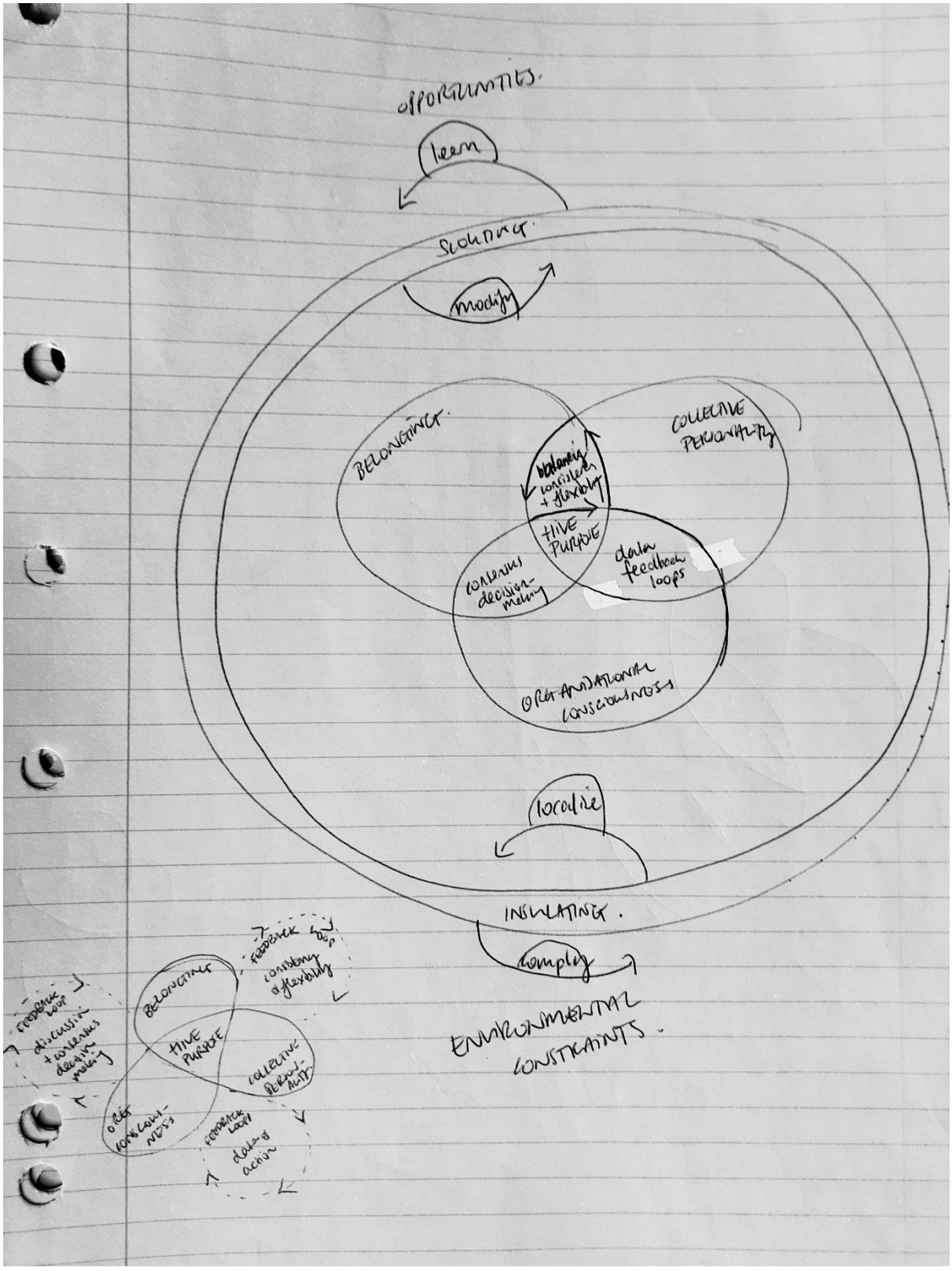

STRUCTURAL
MANAGERIAL
COLLECTIVE ATTRIBUTES
FORM FOLLOWS FUNCTION
HETERARCHICAL LEADERSHIP
HIVE
PURPOSE.

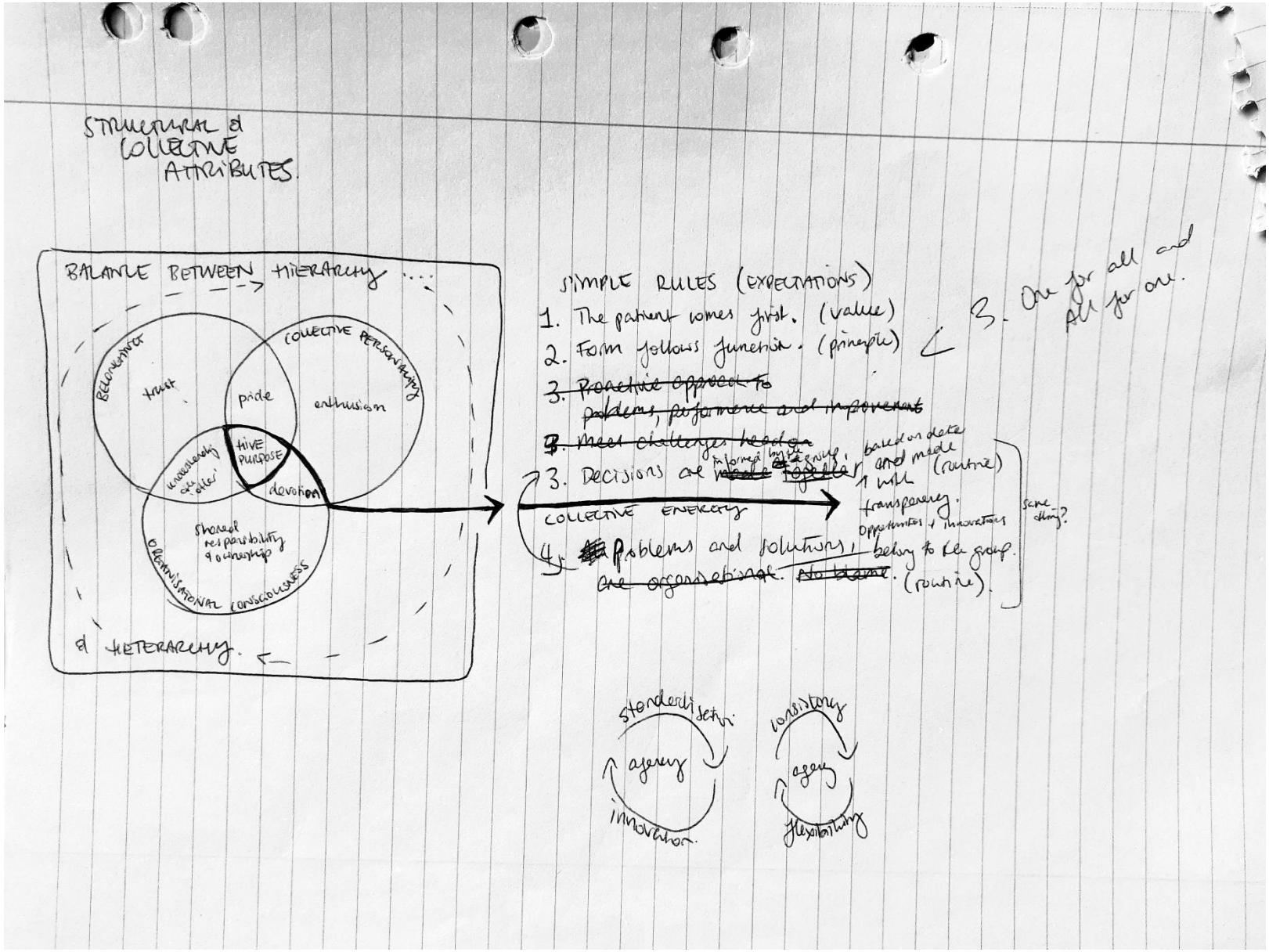
Collection personnelle
Religion
Art contemporain
Univers privé
Musée
Voyages
Musée imaginaire
Collection d'amis


WHAT / structure
WHY?
HOW + events
FEEDBACK LOOPS
BELONGING
trust
pride
COLLECTIVE PERSONALITY
enthusiasm
HIVE PURPOSE
devotion
shared responsibility & ownership
ORGANISATIONAL CONSCIOUSNESS
Heterarchy
Heterarchy
Quotes
SIMPLE RULES
environmental op's
slowing & learning
data reviews auditing
discussion + consent
decisions
agency
flexibility
actions
responsiveness to worker bee information / scandals
structural integration b/w clk
+ cohesion
interdisciplinary team decision-making
committees + structures + guidelines
history of $ capital investment
amendment process

CULTURE
FEEDBACK LOOPS
COLLECTIVE ENERGY
- enthusiasm
- effort
- proactivity
- receptivity to change
- willingness
- Pride.
- Agency.
- Purpose
- Self-reliance & diversity.
- Striving to be the best
BELONGING
- Trust
- Mutual respect
- Inclusion
- Belonging
- Teamwork
- Collaboration
- Helpfulness
- Positivity
ORGANISATIONAL CONSCIOUSNESS
- System-wide vision & ibuntu.
- Shared responsibility
- Relationships
- Alignment
- Emergence
- Simple rules
- Guidelines.
- Boundaries
- Interdependence
- Learning & knowledge sharing
- Feedback
- Communities & structures.
- Form follows function.
- Continuous improvement
- Learning & knowledge sharing
- Feedback
- Interdependence
- Boundaries


WHAT IS? The PHENOMENON:
WHAT
STRUCTURAL ATTRIBUTES
WHAT
MANAGERIAL ATTRIBUTES
WHAT
COLLECTIVE ATTRIBUTES
ROUTINES
PERFORMANCE METRICS
- devolved + decentralised
- balance b/w
- hierarchy
- heterarchy
- egalitarianism
↓ central
↓ formal 1/2
↑ specialised 1/2.
- Being heard (listening) (respecting)
- support from mgt + ability to challenge
- clear expectations.
- Exec staff visible + reliable.
- Ship + mgt. - natural directorship
- transparency
- strong implementation
- leading by eg
- exec strategy.
- Belonging.
- collegiality
- trust
- happy
- in place
- safe
- voice.
- understanding decided
- Group + team consciousness
- org identity
- Hive purpose
- owning purpose + improv.
- alignment b/w mgr, org + comm
- collective responsibility.
- Devotion
- morale
- pathos
- collective behav
- avoiding jargon
- agency - balance b/w =
- challenging status quo.
- consensus + democratic decision + quorum making.
- feedback loops.
- interdisciplinary teamwork
- use of data - reliable
- top down / bottom up
- important fascination w data
- collective behav
- working over & above
- practice
- simple rules
- adapting to environ
- planning.
ROUTINE EVENTS
Balance Between Hierarchy + Heterarchy.
STRUCTURE + (context?)
Retrievement
= HIGH PERFORMANCE.
= SUSTAINED IMPROVER
OUTCOME
PERFORMANCE METRICS
- Accuracy
- Effectiveness
- efficiency
- Readiness

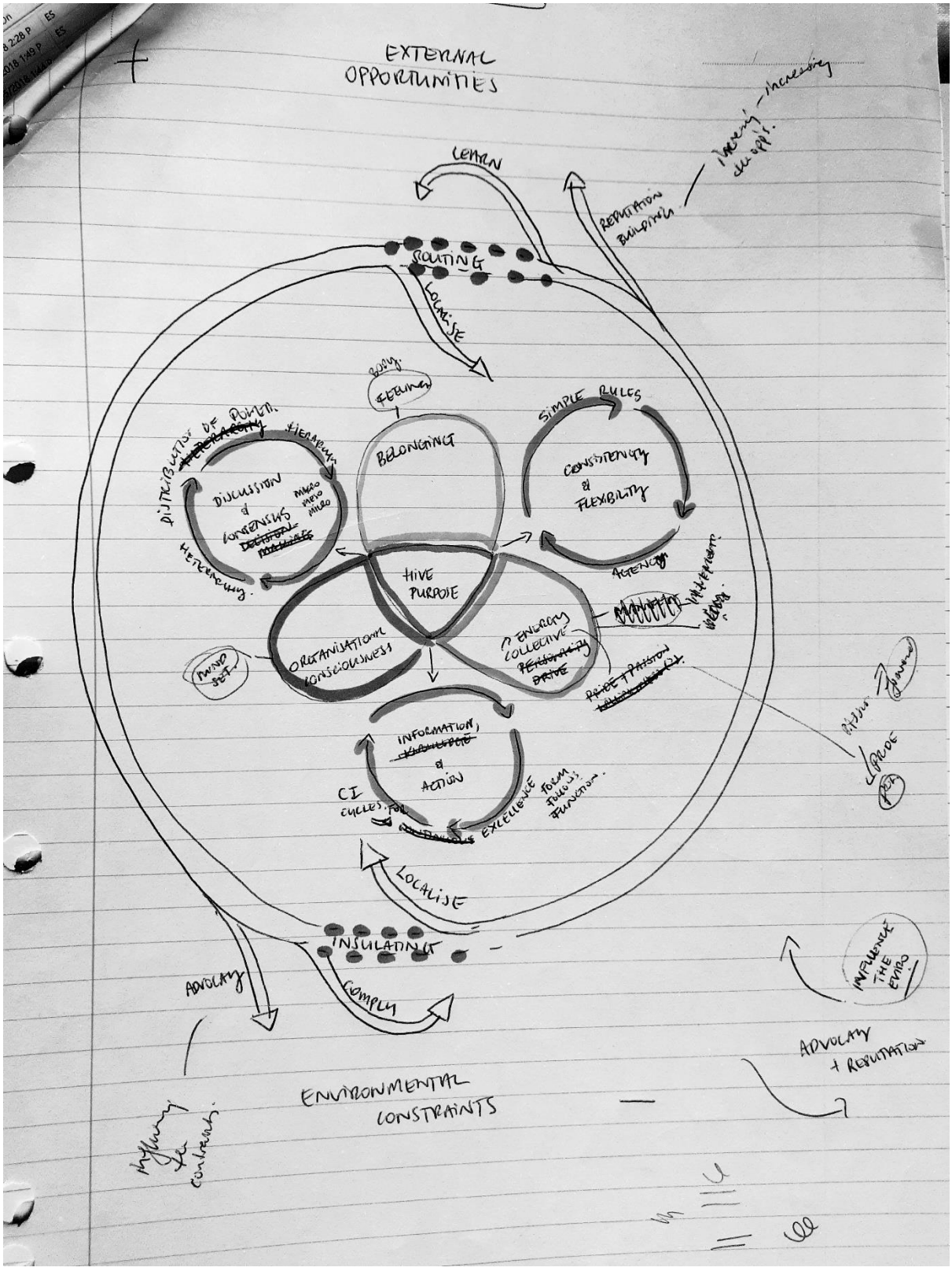

opportunities.
learn
scouting.
modify
belonging.
collective purpose
balancing
+ flexibility
HIVE PURPOSE
data feedback loops
organizational consciousness
localize
INSULATING.
comply
ENVIRONMENTAL CONSTRAINTS.


STRUCTURAL & COLLECTIVE ATTRIBUTES.
BALANCE BETWEEN HIERARCHY ...
BELONGING
trust
pride
COLLECTIVE PERSONALITY
enthusiasm
HIVE PURPOSE
devotion
Shared responsibility & ownership
ORGANISATIONAL CONSCIOUSNESS
& HIERARCHY.
SIMPLE RULES (EXPECTATIONS)
1. The patient comes first. (value)
2. Form follows function. (principle)
3. One for all and all for one.
3. Decisions are informal, based on data and made (routine)
COLLECTIVE ENERGY
transparency.
4. Problems and solutions belong to the group. (routine).
standardisation
agency
innovation
consistency
agency
flexibility

three rivers
Three C's theory
Mental Modeling

- not - create Hole 3
feedback loop
Mechanisms:
- Activin + Inhibin
= (-) Activation + Inhibition
= simple rules + Emergent Patterns
WHO?
Individual
Collective
Behaviour
Mind
Body
Culture
Nature
Time
Space
Power
Energy
Matter
Information
Relationship
Identity
Meaning
Purpose
Emotion
Intelligence
Consciousness
Perception
Cognition
Learning
Memory
Creativity
Imagination
Intuition
Wisdom
Language
Communication
Technology
Science
Art
Spirituality
Religion
Philosophy
Psychology
Sociology
Anthropology
Economics
Politics
Law
Ethics
Aesthetics
Metaphysics
Epistemology
Ontology
Logic
Mathematics
Physics
Chemistry
Biology
Geology
Astronomy
Ecology
Evolution
Genetics
Neuroscience
Medicine
Health
Illness
Death
Birth
Life
Love
Hate
Fear
Joy
Sadness
Anger
Surprise
Disgust
Trust
Anticipation
Acceptance
Shame
Guilt
Pride
Envy
Jealousy
Gratitude
Forgiveness
Compassion
Empathy
Sympathy
Apathy
Indifference
Ambivalence
Conflict
Resolution
Negotiation
Mediation
Arbitration
Litigation
Legislation
Regulation
Enforcement
Punishment
Reward
Incentive
Motivation
Goal
Objective
Strategy
Tactic
Plan
Action
Result
Outcome
Impact
Influence
Power
Authority
Leadership
Followership
Teamwork
Collaboration
Competition
Cooperation
Coordination
Organization
Management
Administration
Governance
Democracy
Autocracy
Anarchy
Socialism
Capitalism
Communism
Fascism
Liberalism
Conservatism
Progressivism
Feminism
Environmentalism
Pacifism
Militarism
Nationalism
Globalism
Localism
Regionalism
Federalism
Unitarism
Secession
Revolution
Reform
Evolution
Stagnation
Decline
Collapse
Renewal
Sustainability
Resilience
Adaptation
Innovation
Creativity
Imagination
Intuition
Wisdom
Knowledge
Information
Data
Communication
Language
Culture
Nature
Time
Space
Power
Energy
Matter
Relationship
Identity
Meaning
Purpose
Emotion
Intelligence
Consciousness
Perception
Cognition
Learning
Memory

Emergent
Behavioral Patterns
Physical Behavior
Thought
Feelings
Perceptions
Cognitive Processes
Neural Activity
Genetic Coding
Epigenetic Modulation
Neurotransmitters
Neuromodulators
Hormones
Receptor Proteins
Ion Channels
Structural Proteins
Metabolic Proteins
Transcription Factors
Cell Membrane
Cytoplasm
Nucleus
Mitochondria
Endoplasmic Reticulum
Golgi Apparatus
Ribosomes
Lysosomes
Peroxisomes
Cytoskeleton
Extracellular Matrix
Cell Junctions
Signal Transduction
Gene Expression
Protein Synthesis
Post-Translational Modifications
Protein Folding
Protein Degradation
Autophagy
Apoptosis
Necrosis
Inflammation
Immune Response
Wound Healing
Tissue Repair
Angiogenesis
Metabolism
Energy Production
Oxidative Stress
Antioxidant Defense
Detoxification
Circadian Rhythms
Sleep
Stress Response
Homeostasis
Allostasis
Plasticity
Learning
Memory
Consciousness
Self-Awareness
Social Behavior
Communication
Culture
Environment
Ecosystem
Biosphere


EXTERNAL OPPORTUNITIES
LEARN
REPUTATION BUILDING
SOLUTIONS
LOCALISE
BELONGING
SIMPLE RULES
CONSISTENCY & FLEXIBILITY
DISCUSSION & CONSENSUS
HIVE PURPOSE
ORGANISATIONAL CONSCIOUSNESS
ENERGY COLLECTIVE
INFORMATION & ACTION
CI
EXCELLENCE
LOCALISE
INSULATING
ADVOCACY
COMPLY
ENVIRONMENTAL CONSTRAINTS
INFLUENCE THE EVENTS
ADVOCACY + REPUTATION

APPENDIX K – COPY OF DR MICHAEL WALSH'S OPENING SPEECH

The ALFRED — Service and Care

Alfred Matters:

Regular news bulletin for staff of Alfred Hospital

July 1997 | Special Edition

EVOLVING THROUGH DEVOLVING:

The Alfred's Organisation Structure and Inner Workings

In early May 1997 Chief Executive of The Alfred, Dr Michael Walsh presented to staff his ideas regarding the future organisation of The Alfred. This Special Edition of *Alfred Matters* provides staff with a written record of this presentation.

The primary purpose of this presentation is to introduce myself to staff of The Alfred, examine some of the issues I think are important after some seven weeks here and to indicate to you how I see us developing as a hospital over the next three to five years. I will also outline the immediate problems facing us over the next few months.

I am a medical graduate of Monash University. I graduated in 1981 after receiving some of my training here at The Alfred but more at Queen Victoria and Prince Henry's Hospitals. After graduation I practiced in Wangaratta for a couple of years and then moved to Perth, where I stayed for 10 years.

I worked in Emergency Medicine before taking on Medical Administration. I was with the Health Department of Western Australia for four years, becoming Chief Medical Officer. I then moved to Fremantle Hospital, a general teaching hospital of around 400 beds, with a large psychiatric unit and a similar patient load and emergency department load to The Alfred.

Following three years there, first of all as Director of Medical Services, then in the last year as Acting Chief Executive, I returned to Victoria in 1994 where I took up a position with the Department of Health and Community Services as Director of Acute Health. I was the bureaucrat responsible to the Minister for policy regarding public and private hospitals and particularly things like casemix funding, quality issues and waiting list issues.

In summary my background is medical by way of training, with a mixture of hospital management and government policy experience. It is exciting to get back into hospital work. I enjoy working in hospitals and I enjoy mixing with people who are working with patients. The work that goes on here is much more related to my basic training than central Departments' bureaucracy, which can be very distant from what goes on at the patient's bedside.

I am looking forward to my period at The Alfred and I hope that together we can bring about some changes that will leave The Alfred in a better position for the future.

How we will work together

I would now like to make some observations about organisational structure, by which I mean the way we all work together, then consider business rules about how we should behave towards each other within the organisation to get the work done. I would then like to discuss structural changes which I will be introducing immediately. I will review what we need to achieve over the next 12 to 18 months, and finish by outlining immediate management priorities.

Prior to discussing The Alfred's culture, it is important to outline what I see to be the key aspects of the role of the Chief Executive. My preferred approach is to act as a change agent and a catalyst, to push hard to delegate authority and decision making responsibility down as close to the levels where people are actually doing the work as possible. It is important to be a good communicator, and particularly a good listener and to seek out good ideas across the organisation, from all levels of the organisation and not to be overly dependent upon the formal structure. The Chief Executive, and indeed all senior managers, must facilitate good ideas in a large complex organisation like this and act as coach and supporter for those who come up with these ideas.

The Chief Executive is ultimately accountable for the performance of The Alfred. The most important aspect of The Alfred's performance is patient care – and the Chief Executive is accountable for that and also for the financial performance of the organisation. However, we are, each of us, individually only as good as the team we work with, and so it is important that each individual staff member at The Alfred recognises that he or she carries a special responsibility in supporting those who work with us and in fostering The Alfred's reputation for excellence in service and care.

I do not believe that some traditional models of the Chief Executive are all that relevant any more. I don't see myself as a controller; I don't see the Chief Executive as a commander, or a ruler, or a judge, or a guard. These roles are out of date. I certainly don't see the Chief Executive as the source of all wisdom or ideas, nor should he be the only leader in an organisation such as this, and lastly I don't think that senior managers in complex organisations like these can afford to be bad losers or to be frightened of taking risks in order to overcome issues and problems.

It is important to recognise that leadership is a role, not a position. This means that it is an error to expect that leadership will exactly equate with the hierarchical structure of the organisation. One can find influential bright people with good ideas throughout the organisation and the challenge is to allow these people to come to the fore.

In my view it is important to foster an environment of trust and mutual respect and the best way to do this, is to encourage open, frank communication and by providing feedback on performance. We must be consistent in terms of management direction and exhibit tolerance in terms of things that might not work out exactly as planned. We must build up those behaviours that motivate good performance and eliminate things that our staff find distracting and destructive.

In particular, it is important to maintain the self-esteem of the staff, to listen and respond with empathy, to ask for help and to encourage involvement and to promote action and the taking of responsibility.

These may seem to be simple, motherhood statements, but it is surprising how often they are ignored.

Demotivating behaviours include concern about one's self first, sending mixed messages, jumping to conclusions, making excuses, blaming others and avoiding responsibility.

The last and perhaps the most important aspect of having an organisational culture which is capable of coping with the stresses and the changes of the late 1990s is to empower staff through a strong commitment to delegation. That means we need to promote decisions close to where the service provision occurs and we need to promote free and open sharing of knowledge and information.

I believe strongly that we should build a culture of positive learning at The Alfred, and I shall be endeavouring to do so over the next three to five years.

What does that mean in terms of the way we conduct ourselves?

- We need to trust each other;
- We need to have mutual respect and a team approach;
- We need to work hard, with honesty, integrity and reliability.
- We need to encourage frank, open communication.
- We must be recognised for our excellence – importantly, as it is demonstrated by objective measures.
- We should not be afraid to measure our performance and achievement against other peer hospitals.
- Where those hospitals and organisations have something to offer we should be happy to learn and embrace, where we have something to offer, we should be happy to share the knowledge.
- We should take pride in our achievement, we should tolerate failure and encourage rectification.
- Most importantly, we must be committed to serving the public. This hospital has a 125 year history of serving the public and we have a responsibility to carry that tradition forward.

How we will behave to each other

Arising from these observations on culture at The Alfred, I would propose some business rules which describe the way we need to behave toward each other.

We want transparency and honesty, consistency, clarity of expectations – particularly in the roles each of us plays in fulfilling our day to day work, and clear communication. There needs to be an emphasis on performance, through clear performance requirements, regular performance appraisal, rewards for superior performance and rectification of under-performance. We also need to encourage timely decision-making and action through proper delegation of responsibility and accountability.

Teamwork is expected as part of our behaviour, as is flexibility. These days because of the complexity of the environment in which we work in, it is more likely that we will face ongoing restructuring and resizing, rather than a period of long stability.

Lastly, where we identify priority tasks or projects that need to be done, we need to work across multi-disciplinary teams to achieve those tasks and then to move on to other tasks, rather than having a heavy dependency upon multiple standing committees that seem to go on forever and perhaps not achieve a great deal.

These business rules constitute the preferred way we should behave. What are the behaviours we should avoid? Non-preferred behaviours include plotting, procrastination and indecision, secrecy or selective communication, a lack of clarity of roles and expectations, soft or no performance specifications and evaluation, working in cliques rather than in teams, and an over-reliance on traditional structures.

These behaviours are not uncommon in public hospitals and I think we need to look at ourselves and try to eliminate them where they exist within The Alfred.

An evolving structure

I turn now to structure, and how I believe we need to evolve at The Alfred. I don't believe that in any sense an organisational structure is a permanent thing. We need to be flexible in adopting the organisational structure which best suits the needs of The Alfred and in the end that will depend a lot on who the people are in the organisation and what it is we are trying to achieve.

What follows gives an indication of how I see we need to develop over the next 18 months, but we need to be responsive to issues that come up and be flexible in terms of how the structure works.

Diagram 1 shows the Inner and Eastern Health Care Network Board as the ultimate accountable authority for The Alfred.

Simon Blair is the Chief Executive Officer, myself as the Chief Executive of The Alfred and then three broad columns reporting to the Chief Executive.

The operational management column is headed by the Chief Operating Officer, Bruce Levy. The clinical leaders group will provide strategic planning advice for the future development of The Alfred. The Office of the Chief Executive covers functions that report directly to the Chief Executive.

Diagram 2 illustrates the operational management structure. It is divided into seven streams and there are a number of new positions or changed positions in these streams.

Clinical support services contains allied health services, pharmacy, the diagnostic laboratories and pathology and radiology. The Director of Clinical Support Services is yet to be appointed and that process will happen over the next few months. The Nursing Division is headed by Janet Secatore and covers all nursing areas.

The position of Director, Information Services is new and will cover the existing Information Technology department, but also the NxIS project - a major information system upgrade project. The NxIS project is about ensuring that The Alfred's computers work after the 31 December 1999, but also upgrading the use of information systems for clinical service delivery, rather than continuing an almost exclusive focus on administrative systems. Libraries will also be under the Director, Information Services as well as Medical Records and Performance Evaluation. This new position effectively pulls information out from the Finance and Business Services Division and makes it a stand alone area with representation at the senior executive level.

Dr Taffy Jones heads up the Medical Services Division. The Director, Finance and Business is vacant but we are well advanced in recruiting a new person to fill that position. Human Resource management is the sixth stream, and the last is administrative services, including cleaning, security, catering, gardening and engineering.

This structure came into effect as of Monday 5 May 1997. However I see this as a structure which is evolving towards a clinical directorate model as I will outline presently.

Briefly, the Office of the Chief Executive contains a number of core functions that relate directly to the Chief Executive.

The first is public relations. Public relations, media relations, the external and internal image of the hospital are important and I will take a personal interest in promoting The Alfred.

The Patient Representative should report to the Chief Executive because we are here to serve patients and we need to provide an avenue for patient input into the way we do our work.

Quality is a critical issue. I have never seen a hospital develop a really strong quality approach unless and until senior management, especially the Chief Executive, takes a strong interest and responsibility. I have a commitment to quality and I will be personally heavily involved in the quality programs, especially hospital accreditation.

The Alfred Foundation is also directly responsible to the Chief Executive. The Alfred Foundation is a very active fundraising body for the hospital. It is currently planning a major appeal. We cannot underestimate the importance of the Foundation to the future of The Alfred. In effect, through the Foundation's excellent work The Alfred gains a funding stream over which we have significant control.

DIAGRAM 1

STRUCTURE: A Starting Point Only

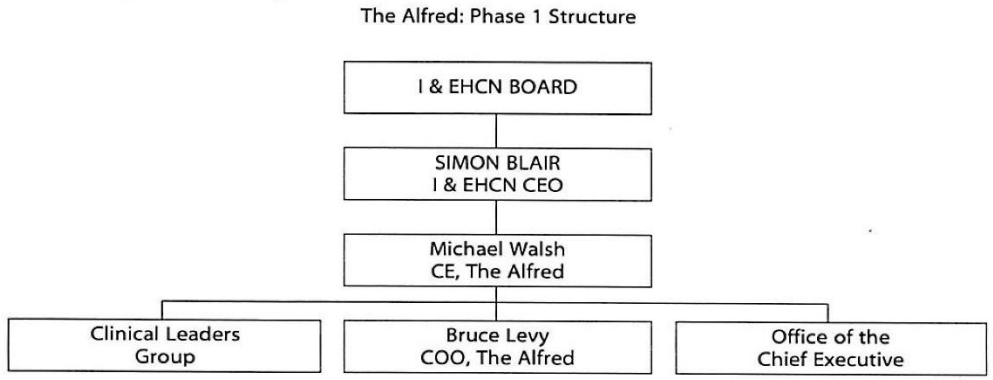
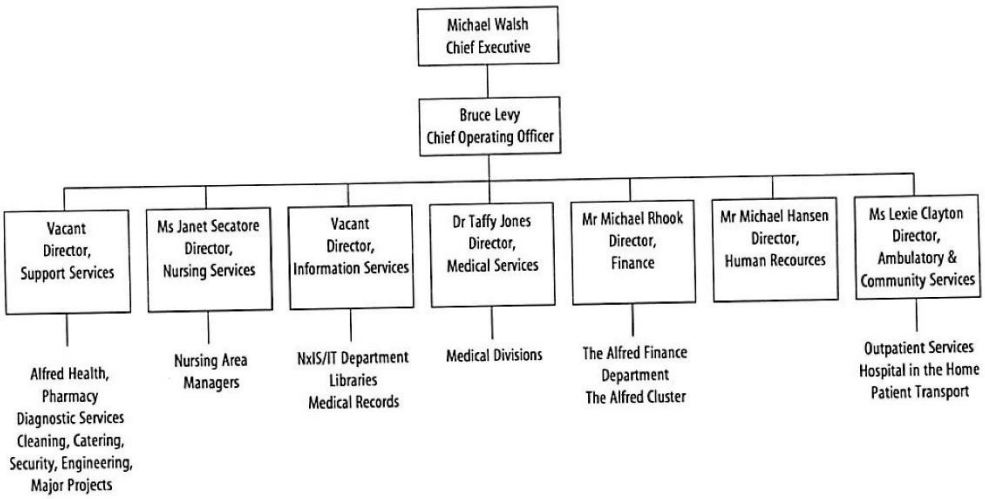


DIAGRAM 2

STRUCTURE: The Alfred Executive

The Alfred Organisational Structure:
The Executive Group



* This structure has been amended since Dr Walsh's presentation

So to the extent that the Alfred Foundation is successful in its endeavours, and we will all be contributing from time to time to those endeavours, it gives the Alfred much more control over its own destiny because much of the funding that comes through the Foundation can be used on high priority Alfred projects.

There are quite a number of major capital works projects that are well and truly overdue at The Alfred. These include ward upgrades, the amalgamation of emergency and trauma services, the integration of the intensive care units, the upgrade of the operating theatres, the upgrade of the radiology department and the upgrade the outpatient department. It is great to come back here after not being here much since 1981, go down to the Emergency Department and see that it hasn't really changed from when I was a fourth year medical student learning to put in stitches!

New clinical directorate structure

It is important for me to give an indication of where I see The Alfred organisational structure going. I have a strong personal belief, consistent with my statements about delegation, that ultimately we need to move towards clinical directorates. There are a number of ways that we can introduce clinical directorates and hospitals around Australia have adopted different approaches.

Diagram 3 shows the essentials of a clinical directorate structure. The most common approach is probably the traditional approach of a directorate of surgery, directorate of medicine, emergency and critical care, obstetrics and gynaecology, psychiatry etc. There are other ways of doing it. Another way is around functional areas – so we have an ambulatory care directorate, an emergency and intensive care directorate, inpatient ward directorate, etc.

In my view we need the next 14 months to work together to determine how we intend to implement clinical directorates at The Alfred to meet what are our own special circumstances. Over the next 14 months I will be working with Bruce Levy, Taffy Jones and Janet Secatore in particular to thrash out how we will implement The Alfred Clinical Directorates.

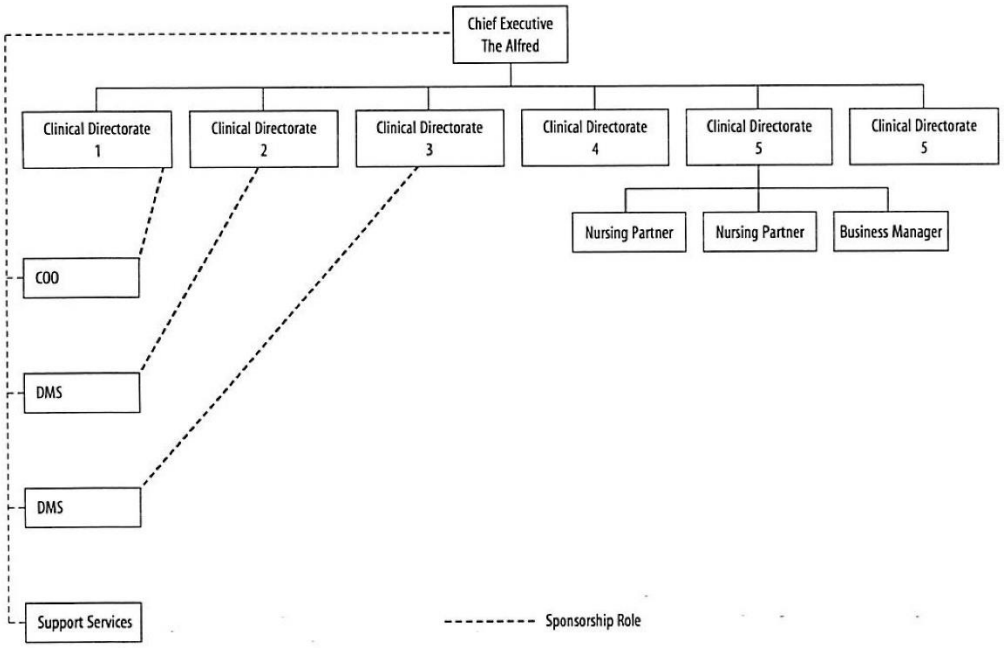
I would like to start implementing the directorate structure by 1 July 1998. I see each directorate having a joint leadership – a medical and nursing partnership – with support from a senior business manager.

A key implementation issue is getting proper information systems up to enable the clinical directorate managers to make informed management decisions. That has been a major problem at The Alfred. We have some clinical business units and they are a good start, but they are almost totally medical. They haven't evolved from the medical division to the nursing division and to allied

DIAGRAM 3

STRUCTURE: Future Directions

The Alfred: Decentralised Management Structure



health and other areas, and the information systems don't give the people who run those business units the necessary information to make decisions about where the resources are going.

So if we are going to do this, and we are, we need to get the information systems and get the people in place and to allow them to have autonomy, responsibility and accountability for running the various areas within the clinical directorate.

The Chief Operating Officer, Director of Medical Services, Director of Nursing, and Director, Support Services positions would continue to exist under the clinical directorate model. They would have an advisory function, however, and they would not have a line management function. The dotted line on **Diagram 3** indicates that each clinical directorate would have an executive management sponsor.

This is the type of organisational structure we will be working towards over the next 14 months. A lot of water needs to flow under the bridge to get this up, and it is possible that we won't introduce all of clinical directorates at the one time but rather we will gradually introduce them as we have the information systems and the people who are able to take on that challenge.

Clinical leaders group to be established

I mentioned earlier the clinical leaders group. The Alfred must get the best possible clinical services advice on service delivery and development. By clinical advice I mean across the clinical professions, I don't just mean medical advice. So we need to put together a Clinical Leaders Group which is made up of doctors, nurses, allied health professionals and others who have the ability and drive to take a leadership role amongst their peers. This group will meet with myself and other members of the senior executive on a fortnightly basis, to plan out how services are to evolve over the next three to five years. It is a strategic planning group rather than dealing with day to day operational decisions. It is an ideas group and it is a group that takes responsibility for where The Alfred is going in the future.

To establish this group, I intend to write to all staff within The Alfred and ask them to express interest in participating. From the responses I will select the inaugural clinical leaders group and I hope to get it started by the end of May.

I wish to briefly review management committees. The Alfred Executive Committee will be made up of the people who are represented under Bruce Levy as Chief Operating Officer. That Executive Committee will meet every

Monday from 10 am until 12 noon and it will be the committee that handles the operational management of the hospital on a day to day basis. The various former Management Executive Committee (MEC) committees, patient care committee, finance and audit, appointments credentials, occupational health and safety, ethics research and probably half a dozen others I have failed to mention. will all report to The Alfred Executive Committee on a regular basis.

Many of you will have heard that The Alfred is planning to establish a research precinct development with the Baker Medical Research Institute, the MacFarlane Burnet Institute and Monash University. A steering committee has been set up to start planning this development. It is important that the four occupants of this campus, have a clear understanding of jointly where we are going, because in the end we're all dependent upon each other for our future. There will be a joint committee which will be about liaison and planning and development on The Alfred campus.

Other committees which are important are those related to the Alfred Foundation. There are quite a number of Alfred Foundation committees and as I indicated the work that they do is of particular importance to our future.

In concluding this discussion of committees, I make the general observation that I have a preference for time and task specified working parties, rather than a plethora of standing ex officio committees. We will regularly review the purpose and performance of our committees to ensure that they are serving a useful purpose and haven't hit a brick wall.

Clear performance management

Management of change is a basic requirement in health these days. I've mentioned that it is important to have a clear understanding of performance expectations and regular performance assessment.

I intend to introduce performance management for executive members from 1 July of this year. The emphasis of performance management will be on clearly indicating to executives their areas of responsibility and holding them accountable for performance in that regard.

Performance management will be extended to the next line beneath management executives by the 1 January 1998 and I see performance management rolling out across the organisation over the next twelve months to two years.

The methodology for performance management is currently being discussed between the Human Resources Division and the executives involved and we will be sorting that out over the next few weeks.

Strategic and business plans to be developed

I also wish to briefly discuss planning. We currently don't have a strategic plan or a business plan, and it is important now that we get a strategic plan for the next three to five years and get a business plan for the next financial year.

We will face some tough budgetary challenges next year. We have just started this plan and many of you will be involved in further discussions about what it might mean over the coming weeks. We need to wrap up the planning process by 30 September 1997 and I'd like to involve as many people as possible in getting an Alfred strategic plan together.

Immediate priorities

Let me conclude by summarising what I see to be the immediate priorities facing us over the next few months **(see Diagram 4).**

First is this issue of internal organisation structure, culture and function. I have outlined what I see happening in broad terms to the structure. I've indicated that committees will be reviewed and that performance management will be implemented for executives from 1 July.

In terms of clinical services, we are separating from Caulfield General Medical Centre as of 1 July 1997. The critical issue here is to ensure that we maintain the positive things that have come out of being closely integrated with Caulfield over the last few years, including a good patient flow, particularly in relation to the emergency attendances.

A considerable amount of work is being undertaken with Caulfield to ensure that we get a clear agreement on how patient interchange will work – post 1 July. Although the two managements will be separate, it's not our intention that The Alfred and Caulfield will never talk to each other again, or take each other's patients.

There are some Government sponsored external reviews that are important. The Ministerial Review of Trauma services is very important for The Alfred given that trauma services are one of the key services we provide and will continue to provide in the coming years. There is also a radiotherapy review which is of importance to this entire Network given we have William Buckland Radiotherapy Centre here and Peter MacCallum Cancer Institute.

The other important thing to say regarding Network endeavours is that three months ago they appointed clinical service advisors across about 20 different clinical services. Those advisors came from a range of hospitals, seven or eight came from The Alfred, the rest from other hospitals within the Network and they are due to report about now.

Over the next few weeks I expect we will start to see some of the recommendations coming down from Network clinical advisors. Their role was to look over the next three to five years, taking into account that Knox hospital will come onto the scene around about the year 2001 and to advise how services should be developed. Obviously their report will be important in terms of the way The Alfred develops over the next few years.

The financial situation is the next priority. First of all we need to wrap up 1996/97. 1996/97 hasn't been a great year for The Alfred. We will end up running an operating deficit, which I hope will be a small deficit. However if we are running at a deficit then we carry a need to take action to rectify that deficit into the next financial year, as well as

DIAGRAM 4

IMMEDIATE PRIORITIES

- Internal Organisation
  - Structure: Implementation from 5/5/97
  - Committees: Change gradually, commencing 23/4/97
  - Performance management: Implement from 1/7/97
- Clinical Services
  - Caulfield
  - External Reviews esp. Trauma, Radiotherapy
  - Network Clinical Adviser Reviews
- Financial Situation
  - Wrap-up 1996/7
  - Planning for 1997/8
- 3 year Strategic/Business Plan
- Infrastructure Upgrade Master Plan
- Information
  - IT Systems esp. NxtS
  - Management/Decision Support Information
- Focus on Quality
  - ACHS Accreditation November
  - Beyond ACHS . . . Australian Quality Awards, ISO 9000
- The Alfred Foundation Appeal

picking up whatever surprises that the Government has in store for us for the next financial year.

So there are some important challenges to face up to. I hope I will have the opportunity again to talk to you about some of those challenges as we get closer to the end of the financial year and we get a clearer understanding of what the Government's proposals for next year's budgets will be.

I mentioned the need for a strategic and business plan and indicated that we should be well advanced by the end of September this year. We are undertaking an infrastructure upgrade master plan examining the whole site and indicating what are the areas that should be upgraded and how we are to schedule upgrades over the next three to five years. That plan is currently in draft form and will be completed over the next few weeks.

In terms of information systems, the NxIS project I have already outlined. The other key issue is to get proper management and decision support information that enables people in the work place to be able to make decisions about resource allocation and patient care and to have more responsibility and authority instead of having to fill in multiple forms in triplicate that go to lots of committees for relatively minor and trivial purchases.

Quality is important. I have briefly referred to Australian Council on Healthcare Standards (ACHS) accreditation in November. It is particularly important that we do well in the ACHS accreditation in November. It wasn't too long ago that people were talking in gloomy terms about the future of The Alfred. We have started to consider what services should be here in the future, what services should be at Knox, what services should be at St Vincent's, etc. It is important that our ACHS accreditation performance in November reinforces the view that we are one of Australia's leading hospitals and we deliver a high quality of care.

I will be taking a close personal interest in trying to ensure that we succeed. Many of you have been involved in accreditation before and you will know that over the next six months there is a lot of work to be done. I would seek your cooperation and participation in ensuring that we do as well as we can at Accreditation.

It will be different this year, because it is an EQUIP type accreditation. Surveyors will be looking for evidence of continuous quality improvement, proper monitoring of quality indicators and the so called quality circle where you measure and you assess, you take some action and then you review the action.

Finally, the success of The Alfred Foundation Appeal is a high priority. The Foundation is planning a major planning a major appeal to run over three years, beginning around the middle of this year. As with all such appeals it is important that we at The Alfred get right behind the work that they are doing largely on a voluntary basis.

I want to conclude by briefly seeking your help in developing The Alfred's mission statement, philosophy and values of practice and goals. One of the documents that I have passed around to you is the first cut at the mission statement philosophy, values, goals etc. I invite you to read through this draft, have a think about it and if you have any comments or suggestions please scribble them down on the back of the paper and send them back to my office. I will pull together the ideas and work through suggestions over the next few weeks. I'm keen to try and get the mission statement, values etc up to the Network Board for their approval if possible in early June.

Thank you very much for taking the time to attend.

The Alfred: Motto, Mission and Values

Our Motto:

Excellence in Service and Care

Our Mission:

The Alfred is one of Australia's leading hospitals. Our priority is high quality, cost effective patient care founded on excellent practice, teaching and research. We care for everyone, no matter how complex their health problem. We strive as a team to provide service and care which improves the quality of life of our patients.

Our Values:

Advancing the practice and science of health care:

In cooperation with our patients, we teach excellence in health care practice. By fostering leading scientific research, we forge the vital link between knowledge and clinical practice. We apply technologically advanced clinical practice to achieve the best health outcomes for our patients.

Linking with our communities:

The Alfred is a community asset. The Diversity of our workforce, and the range of cultures and specialised skills we have available, is our strength. We work constructively with other health care providers to improve the quality of life of our patients, their families and carers. Our communities are multi-cultural, and we accept a leadership role in identifying and servicing their needs and in promoting healthy communities. We respect our communities and welcome their support through volunteer activities and philanthropic assistance.

Furthering our tradition of public service:

Our doors are open to everyone. We recognise and uphold a tradition of service to the public, spanning more than 125 years, where access is based solely on health care need.

Respecting our patients:

We practice patient-centred care, and we aim to exceed the expectations of our patients and their carers by providing outstanding care and service. We offer compassionate care to all, and we respect individual dignity and the right to self-determination.

Excelling through teamwork:

We work together as a team, valuing each other's skills and knowledge, and we give support and encouragement to each other in an environment of trust, honesty and mutual respect. We recognise that as each one of us is perceived by those we care for and serve, so The Alfred is perceived.

Doing Better:

We continually question the way we do things, because we want to improve. We analyse our own effectiveness; we compare ourselves to "best practice" standards and learn from the experiences of others; we foster new ways of providing service and care. By seeking feedback from our patients and their carers, from those we teach, and from our research peers, we endeavour to improve our own performance through continuous learning.

Alfred Matters is published regularly for staff of The Alfred hospital, member of the Inner & Eastern Health Care Network.
Contributions are welcome and can be directed to the Public Relations Department at the Alfred Hospital on ext 2266.

APPENDIX L – THE DEVELOPMENT OF A DECISION-SUPPORT TOOL FOR CONTEXT-SENSITIVE THEORY BORROWING

Like many public services, hospitals are often prompted to adopt and rapidly implement improvement strategies that were initially developed within other organisations, sectors or contexts (e.g. Andersen, Rovik and Ingebrigtsen (2014)). This is consistent with the notion of 'isomorphism' as discussed within institutional theory (Meyer & Rowan 1977; Mizruchi & Fein 1999). However, often the understanding, selection and application of adopted interventions is hasty, ill-informed, lacking in theoretical rigour, and lacking empirical evidence for application within hospital settings (Davidoff et al. 2015; Grol et al. 2007). There is also a deeper question surrounding the degree to which it is possible to generalise empirical findings or theories from one organisational context to the next, given the many peculiarities that exist within distinct organisational settings. That is, to what degree is it possible to transfer, borrow or adapt theory from one context and apply it to another? Is it better to replicate known models and practices adopted from elsewhere, or to develop new approaches that are uniquely suited to the conditions of the particular case at hand?

For health services research, the presence of distinctive organisational contexts remains crucial (Bate 2014), yet, as argued here, it should not preclude the testing, refinement, and adaptation of appropriately selected externally-generated theories to these settings. Context is neither an 'inert backdrop' nor unfathomable 'black box' (Pollitt 2013), and it is the aim of this study to integrate and adapt knowledge from out of field whilst maintaining the integrity of the specific empirical context. A relatively small number of authors have called for better use of theory within health service research and practice (Davidoff et al. 2015; Grol et al. 2007), although, however small in number, these articles tend to attract high numbers of citations demonstrating a growing level of interest in the topic. The critical issue is perhaps less *where* theories have originated, but *how* they are re-contextualised within new empirical environments.

In essence, the 'to borrow or not to borrow' dilemma seems to hinge on the degree to which researchers and practitioners are able to tolerate one of two evils: theoretical isolationism or contextual mismatch. Those in favour of rejecting all out-of-field theories (isolationism) run the risk of 'reinventing the wheel' and overlooking potentially important

and relevant breakthroughs. In contrast, those who favour a more liberal approach to inter-sector/context cross-fertilisation, may risk introducing an unhelpful mismatch between theory and context, compromising the capacity to offer useful theoretical explanations. Irrespective of which evil may be deemed the lesser, the result may be identical – a great waste of time, research funding, and most importantly, a missed opportunity to improve the state of health services. Fortunately, most scholars choose a more moderate approach between the two extremes; however, that is not to say that: i) trade-offs associated with the sliding scale are avoided entirely or ii) that scholars make this choice explicitly with a full understanding of the implications of their decisions.

Notwithstanding any differences in opinion on the matter, a common recommendation is to consider context when drawing on or modifying externally-generated theory (Ferlie & Ongaro 2015, pp. 121-165; Radnor, Holweg & Waring 2012). A significant problem arises in practice, however, as there is often very little consideration for *how* this may occur. Scholars tend to either recommend the selection of an empirical context that is likely to be 'receptive' to the theory of interest (Hansen & Ferlie 2016) (arguably, introducing a form of confirmation bias) or by implication, they may instruct colleagues to undertake meta-analyses or literature reviews as a retrospective analysis of what worked and what did not, with significant time, money and opportunity costs. Curiously, there is little explicit discussion across a broad array of relevant research disciplines and fields (i.e. health, management, public sector administration) regarding the overarching problem of theory borrowing, and similarly, little guidance for those who wish to approach the modification of external theory for health care contexts in a systematic and purposefully context-sensitive way (Øvretveit et al. 2018).

Beyond theoretical isolationism and contextual mismatch

Here, the aim is to bridge the gap between theoretical isolationism and contextual mismatch by presenting a novel framework and a set of decision-support guidelines for the contextualisation of theory between different empirical settings. The framework and guidelines developed and introduced herein represent a synthesis and extension of the 'theory borrowing' literature that has received little attention in management and organisation studies over the last decade, and remains a relatively minor topic of discussion within related fields (Hong et al. 2014; Kenworthy & Verbeke 2015). This synthesis and

extension of the literature may also prove useful for scholars from other disciplines, including management fields, public management, and importantly, scholars interested in transdisciplinary research for whom the implicit problem of theory borrowing can offer substantial challenges. The synthesis and theory borrowing approach offered herein, may also provide a useful contribution to the broader critical realist literature, which currently offers little pragmatic guidance as to *how* a theory may be generalised from one context to another.

This Appendix J is structured in two parts. First, the notion of 'theory borrowing' is formally introduced (as it is understood within the scholarly field of management) alongside the various approaches to theory borrowing that have been devised by management and other scholars. This section concludes with a case study – the application of Lean Thinking to health services (Andersen, Rovik & Ingebrigtsen 2014; Radnor, Holweg & Waring 2012) – as an example of implicit rather than explicit theory borrowing, and how this can lead to contextual mismatch and highly variable outcomes. The second section provides a synthesis of existing theory borrowing approaches, and constructed from this synthesis, a novel theory borrowing framework and decision-support tool is presented. Lean Thinking is again used as a case example to demonstrate the way in which the decision-support tool may be used.

Theory borrowing

Defining theory borrowing

'Theory borrowing' is a term most commonly used by management scholars, and appears to be used rarely outside of that field (with some important exceptions (Hong et al. 2014)). The precise meaning of the term is often left unstated; however, authors of an organisational studies article published in the Academy of Management Review put forward the following definition:

> *'… the term theory, in a broad sense, means "a system of ideas or statements explaining something" (Oxford English Dictionary). Theory borrowing is therefore concerned with the importation of coherent and fully formed ideas that explain a phenomenon (or phenomena)… from outside the discipline.' (Oswick, Fleming & Hanlon 2011, p. 319)*

Theory borrowing has presented a number of real and practical challenges. Hong et al (2014) listed several drawbacks, including opportunity losses (time spent theory borrowing could have been spent innovating or theory-constructing), infinitely long lists of contextual factors

(with little means for dealing with them) and compromises to parsimony and generalisability. On the other hand, Whetten, Felin and King (2009) listed several potential benefits associated with theory borrowing, including the nurturing of strong ties between applied study and core social sciences, and enhanced interdisciplinary perspectives. Oswick and colleagues suggested that a degree of theory borrowing is difficult to avoid completely (for organisational studies), in the sense that there are always 'foundational antecedents prefiguring and shaping the formulation of a specific theory' (2011, p. 318). Most researchers agree, however, that irrespective of the potential (hypothetical) merits of the practice, scholars are often guilty of poorly translating theories between contexts. The difficulty with theory borrowing, is not necessarily that theory borrowing *occurs*, but rather, that there are often very poor practices surrounding *what* and *how* a theory is borrowed. Examples of theories that are 'mis-borrowed' trace back decades (Murray & Evers 1989), and a case example is provided below.

When theory borrowing goes awry: Lean Thinking

> *… the core theory used to understand public services delivery is now no longer 'fit for purpose'. Indeed it is questionable if it ever were so. Much of the theory that has formed the basis for research about public (services) management has in fact been drawn from the experience of the manufacturing rather than services sector. This is a fatal flaw in the theoretical basis of our discipline and has persisted despite the existence of a substantive theory of services management.' (Osborne 2010, p. 1)*

Radnor and Osborne (2012) provide an example of this 'fatal flaw' in action: the use of 'Lean Thinking' in public health care contexts. Lean Thinking (hereafter, 'Lean') refers to an improvement philosophy and process improvement approach that emphasises the creation of value for the customer, with minimum cost or waste. The approach originated in Japan (although historically drew on imported 'scientific management' concepts from the USA), within the highly competitive car manufacturing industry (Toyota). Lean overtook 'Fordism' as the leading approach to the production of cars, worldwide, due to the capacity for the approach to produce more (manufactured units) with less (investment and error) (McIntosh, Sheppy & Cohen 2014).

Five core principles underpin Lean: i) identify 'value' as defined by the customer; ii) specify the 'value stream' – those processes that bring about value to the customer; iii) create 'flow' within these processes; iv) ensure that the process is structured to respond to 'pull'

from the customer, rather than 'push' from the manufacturer; and finally, v) commit to the continual improvement of these processes (Womack & Jones 2010). There are several typical tools or mechanisms for Lean improvement, classified in three distinct categories: assessment, improvement, and monitoring (Radnor & Osborne 2012). Assessment tools include 'value stream mapping' and 'process mapping' and seek to evaluate the current process and opportunities for flow and waste reduction. Improvement tools include 'rapid improvement events', '5S' and structured problem solving, which generally uses 'mapping' to support the implementation of enhanced processes. Monitoring tools include 'visual management', benchmarking, audits etc., to continually measure and monitor processes and opportunities for future improvement.

Lean was adopted (and adapted), for hospital and health care contexts – both public and private, from the mid-2000s. Well known examples include the Virginia Mason Medical Center (USA) (Pham et al. 2007), the Royal Bolton NHS Foundation Trust (UK) (Bowerman & Fillingham 2007) and the Flinders Hospital in South Australia (O'Connell et al. 2008a). These high-profile case examples championed Lean as an effective approach to health service improvement. Many governments and organisations around the world, hounded by the pressure to 'do more with less', followed suit; however, the results were mixed (Abdallah & R.Z. 2019; D'Andreamatteo et al. 2015; Deblois & Lepanto 2016; Moraros, Lemstra & Nwankwo 2016). Authors have continued to ask pointed questions about the efficacy and suitability of Lean for health services: 'Lean in healthcare: the unfilled promise?' (Radnor, Holweg & Waring 2012); 'is there a cure for the absence of evidence?' (Andersen, Rovik & Ingebrigtsen 2014); 'why Lean doesn't work for everyone' (Kaplan et al. 2014); 'complexity complicates lean' (Mazzocato et al. 2014); 'illusion or delusion?' (McIntosh, Sheppy & Cohen 2014); 'lost in translation' (Andersen & Røvik 2015).

Many (health service) Lean commentators have raised 'context' as an explanation for the variation in results. 'Barriers' and 'enablers' are often reported, and lists of key conditions are discussed, often relating to the peculiarities of 'culture' and difficulties of 'stakeholder engagement' within a medical environment. Taking a step back from these more granular factors, Radnor and Osborne (2012) suggested that the dysfunction can be traced to a set of more fundamental (hidden) assumptions that were improperly imported from the original setting to the service setting. There are potentially two aspects to this. First, there are necessary assumptions and philosophies that must be imported with Lean tools in order for

Lean to work (Hines et al. 2011). Radnor and Osborne (2012) reframed these as organisational readiness factors for the implementation of Lean, including:

> *… an understanding of the processual nature of public service delivery, an appreciation of what 'value' actually comprises within public services, an external orientation for the Lean process and the PSO [*public service organisation*], the active engagement of staff in process redesign and the centrality of co-production to effective Lean' (Radnor & Osborne 2012, p. 272)*

In contrast, there are also various assumptions that may be unintentionally imported, that are incompatible with the new context or setting:

> *'…it is vital to its success to understand that Lean is context-dependent… it derives originally from a private sector, manufacturing context (Toyota) and this context has affected, and limited, its early implementation in public services… it cannot be simply transferred across to a public service context and assume that it can offer the same benefits.' (Radnor & Osborne 2012, p. 275)*

This line of argument is consistent with (and influenced by) Osborne's (2010) rejection of manufacturing as the basis for public sector (including public healthcare) theory. Existing public sector theory and practice, Osborne argued, has ignored the service-relevant context of public services. The public service context is more complex, particularly regarding the interactive nature of service provision and requirements for inter-organisational collaboration.

Osborne (2010) calls for public sector scholars to shift to a 'service dominant logic' as the new underpinning construct for public sector theorising, replacing the outdated 'product dominant logic' derived from the manufacturing sector. Whereas manufacturing: concerns the tangible qualities of a 'product'; typically engages consumers passively; and differentiates between the production and consumption of goods; services deal in: the intangible; the simultaneous production and delivery of value; and the co-production of a service with the consumer. A substantial body of services management research has been developed over the past few decades, with, Osborne argued, a high level of applicability to public service scholarship.

Drawing on the notion of a '(public) service dominant logic', Radnor and Osborne (2012) outlined a set of five propositions, with which to make Lean 'fit for purpose' for public sector organisational settings. The first proposition rejects Lean's inherent focus on internal efficiency, instead emphasising the need for Lean improvements to focus on adding value to

the lives of the end-users of the public service organisation. The second proposition seeks to redress the dominant focus upon the quality of internal processes with a more balanced consideration of the quality of internal processes and external services. The third proposition considers the need to orient Lean towards the end-users of public services, both in intent and in practice, through a full engagement of end-users in the improvement and continuous improvement process. The fourth proposition argues that Lean will only succeed if it is treated as a holistic process, encompassing cultural change rather than isolated or siloed approaches that concentrate on technical improvements only. The final proposition emphasises the need for a cultural shift towards value co-production between professionals and end-users of public services.

Scholarly approaches to theory borrowing and contextualisation

Over the past ten years or so, various scholars have sought to reform the practice of theory-borrowing and have put forward models or advice to assist researchers to make better decisions about *what* and *how* to borrow theory between contexts (Fellows & Liu 2020; Kenworthy & Verbeke 2015; Oswick, Fleming & Hanlon 2011; Whetten, Felin & King 2009). The approach introduced by Whetten, Felin and King (2009) and extended by Hong and colleagues (2014) was selected as a pragmatic basis with which to inform the development of the framework proposed here. In particular, Whetten and colleagues' approach offers several advantages for creating a general guide for theory borrowing, where other authors develop more discipline-specific advice. Additionally, a relatively recent chapter written by Virtanen (2013) within Pollitt's edited book on 'Context in public policy and management' (2013), has further informed the development of the framework. The work of these authors is briefly introduced in this section, before presenting the proposed framework, in the next section.

Whetten, Felin and King (2009) identified two types of theory borrowing: horizontal and vertical. Horizontal borrowing, they propose, refers to the importation of concepts that were originally developed for the study of phenomena in a different social context. For instance, horizontal theory borrowing would occur when Lean Thinking is taken from Toyota and applied to a hospital. Vertical borrowing, on the other hand, refers to the importation of concepts or theories that were originally developed within a different level of analysis. For example, uprooting Lean Thinking from Toyota and using it within only one ward of a hospital would demonstrate both vertical and horizontal borrowing.

Theories that are borrowed 'appropriately', Whetten and colleagues explained, should function in a roughly equivalent way in both original and new settings. Distinctive insights and predictive or explanatory value offered by a theory, should generally 'hold true' irrespective of social context or level of analysis. This is not to say that theories cannot or should not be modified for new contexts, but it offers a common-sense benchmark with which to discard imported theories that 'just don't work', rather than persist where there may be little value. In the same vein as 'look before you leap', Whetten, Felin and King (2009) described a deceptively simple yet important initial step for theory-borrowing:

> *Recalling the adage "a way of seeing is a way of not seeing," it is critical that prior to designing an organizational research study, including sample and measurement selection… scholars first scrutinize the history of their theoretical perspectives and concepts to determine if they will be applied in level- and context-appropriate ways.*

Once a researcher is convinced of the potential for a theory to be appropriately borrowed, Whetten, Felin and King offered several approaches to successful contextualisation (note, the summary offered by Hong et al. (2014) has been drawn on, here). First, scholars must control for context-distinguishing features, as they relate to the phenomenon (Y) but not the explanation (X): '…conceptualize what is unique about the organizational setting as a context and… [think] about how the distinctiveness of the context will affect a theory's logical structure.' (Whetten, Felin & King 2009, p. 555). Second, researchers may formulate context-sensitive versions of the explanation variables (X), ensuring that their explanations are functionally equivalent across alternate settings: 'Comparisons allow the researcher to identify context-specific mechanisms… developing a comparative typology of different organizational environments would be fundamental for refining the use of… [various theoretical] concepts in organizational settings' (Whetten, Felin & King 2009, p. 555). Finally, Whetten and colleagues suggested that scholars can incorporate a contextual effect (Z), related to both the phenomenon (Y) and the explanation (X), as a moderating effect. Essentially, this creates a new 'context' theory, operating within the original theory of interest. Contextual conditions are therefore built directly into the theory, and are used to explain the mechanisms that link conditions to phenomena or events, or influence the relationships between phenomena and those contextual conditions.

In the introductory chapter of Pollitt's (2013) edited text on 'context in public policy and management' Virtanen (2013) introduced a conceptual frame with which to make sense

of ‘context’ within scientific ambition: ‘the contextualities of scientific knowledge’. Four ‘contextualities’ were identified with a correspondingly different emphasis on context as i) conceptual or ii) factual, and relating to a) knowledge or b) knowledge creation. Where context is considered conceptual and concerned with knowledge (i.e. frameworks, theories, models, etc.), it is named ‘framework contextuality’. Context that is conceptual but concerns knowledge creation (i.e. paradigmatic views or preferences of the author regarding ontology, epistemology, methodology, etc.) is termed ‘constructivist contextuality’. Context that is factual and concerned with knowledge (i.e. place, time, actors, institution etc.) is called ‘referential contextuality’, and finally, context that is factual but concerned with knowledge creation (i.e. taken-for-granted understandings of a research object) is known as ‘mundane contextuality’ (p. 11).

Virtanen pointed out that the ‘contextualities of scientific knowledge’ can be viewed from the perspective of ‘universalism’ and ‘particularism’ (pp. 11-12). A universalistic approach favours theories that are capable of making broad theoretical generalisations. Ideally, universal theories should be free from specific factual contexts: capable of ‘surviving’ application in a variety of settings including across place, time, actor, institution etc. Particularistic theories, on the other hand, consider unique or distinct factual contexts as a strength, adding richness and insight to explanations.

What is interesting about Pollitt’s edited text, generally, is that so many chapters were written about ‘factual’ contexts, and so little on the ‘conceptual’ domain of contextuality. The framework and guidelines presented herein, attempts to restore this balance between ‘factual’ and ‘conceptual’ for the purpose of effective theory borrowing between contexts.

Framework and guidelines for theory borrowing

In this section practical, systematic guidance for scholars wishing to borrow theories in ways that are sensitive to both the context from which a theory had originated (‘external theory’) and the context to which a theory may be applied (‘local context’) is provided. The framework (Figure 1) and guidelines (Table 1) presented herein, are best described as preliminary, and it is hoped that other researchers will find both value, and reasons to build upon, refine, modify and tailor various aspects. The framework assumes that researchers wish to borrow theories ‘horizontally’ (between social contexts) as this appears to be the most relevant to health

service scholars; however, the model also caters for 'vertical' borrowing (between levels of analysis), and modifications to the framework could tailor it to suit other purposes.

The case example of Lean Thinking in public health services is used again in this section. Although this example may prove particularly useful to health service scholars, the principles underlying the framework are intended for broader application. This may include critical realist (or other) scholars who wish to examine the notion of theoretical generalisabilty in more depth, or who may wish to apply a process of theoretical generalisation to a theory unrelated to health services research.

The theory borrowing framework and decision-support tool (as illustrated within Figure 1 and Table 1) is designed to operate in two parts. The first part asks researchers to consider whether theory borrowing is appropriate, given the nature of the external theory and the context to which it will be applied. The second part (assuming that the theory borrowing attempt survives the first part), uses the content considered in the first part, to undergo a process of contextualising theory, using several tactics. It is useful to view context-sensitising tactics as options rather than steps, although they are in no way mutually exclusive. In the initial stages of theory contextualisation, multiple tactics can be used as discrete thought-experiments to help sketch what a modified theory might look like, and make predictions about how it might function or interact in a new contextual environment. The key questions guiding this process are laid out in Table 1.

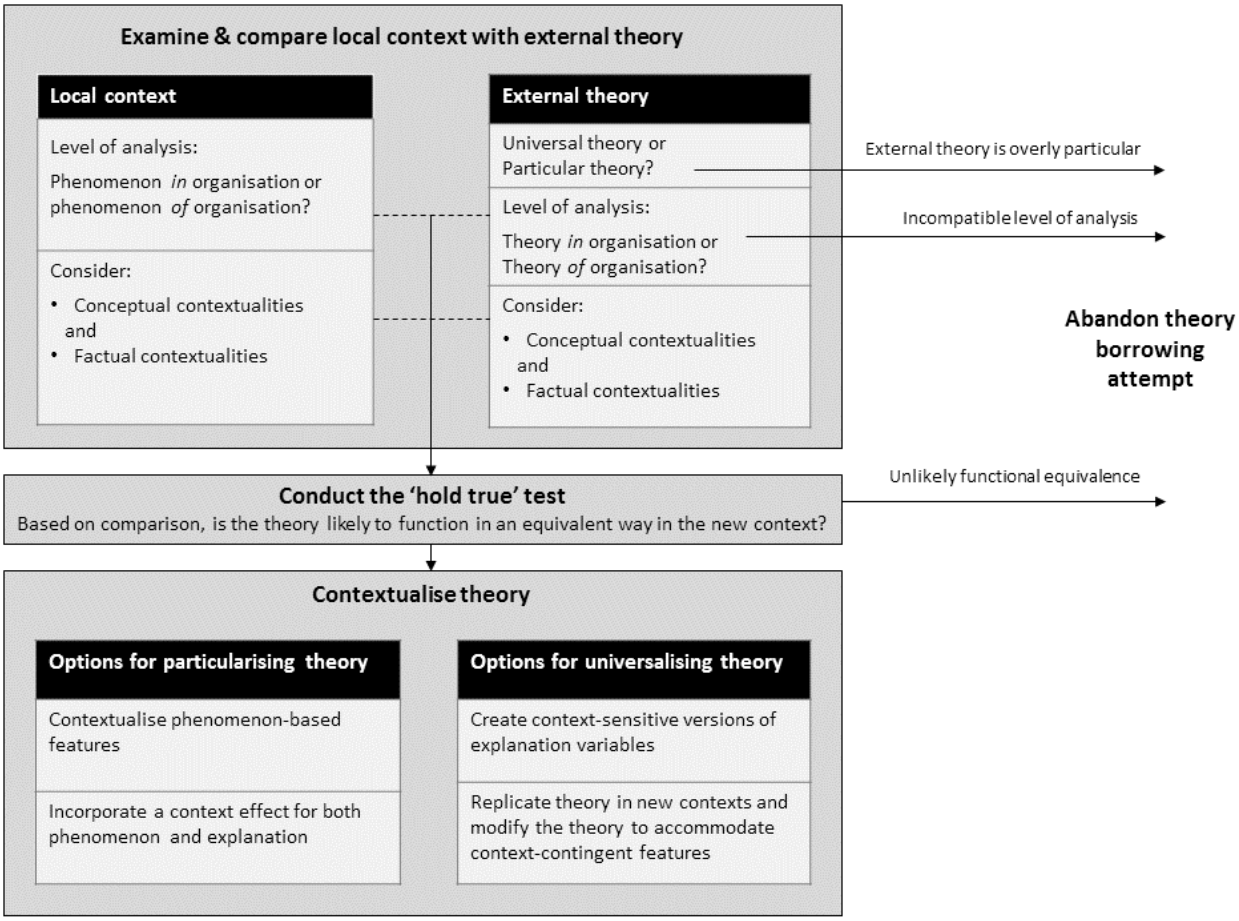


Figure L-1. A framework for theory borrowing between organisational contexts

Table L-1. Guidelines for theory borrowing between organisational contexts

Part 1. Examine and compare the local context with the external theory		
Prompting Question		*Guidance*
1.1	Is the external theory best described as universal or particular?	Consider abandoning the theory borrowing attempt for external theories that are particular.
1.2	Was the external theory originally developed for a level of analysis that corresponds with the local context?	Consider abandoning the theory borrowing attempt where levels of analysis do not correspond between the external theory and the local context.
1.3	What are the key differences between the external theory and local context, regarding conceptual contextualities'?	Consider the school of thought that the external theory may belong to, and identify all possible underlying assumptions that influence the use or explanatory power of that theory. Assumptions may be ontological, epistemological, and methodological. Where there are stark differences in these underlying assumptions, consider abandoning the theory borrowing attempt.
1.4	What are the key differences between the external theory and local context, regarding factual contextualities?	Consider and identify the similarities and differences between the originating context of the external theory and the local context, including: place, time, actors, institution, structure, political and economic factors, or other hidden or taken-for-granted aspects of context (i.e. culture). Where there are stark differences in these underlying assumptions, consider abandoning the theory borrowing attempt.
1.5	Based on an overall comparison between the external theory and local context, is the theory likely to operate in an equivalent way in the local context?	Consider abandoning the theory borrowing attempt where an overall analysis would indicate that the external theory is unlikely to operate in an equivalent way.
Part 2. Options for contextualising theory		
Strategy		*Guidance*
Particularising theory		
2.1	Contextualise phenomenon-based features	Drawing on factual and conceptual contextualities that are important to the local context and phenomenon of interest (1.3 & 1.4), modify the theory to account for these key features.
2.2	Incorporate a context effect for both phenomenon and explanation	Consider and observe the ways in which features of the local context and the application of a particular external theory may interact to create a novel effect. Describe the relationship and interaction between the two, and add this to the external theory as an additional and distinct moderating factor.
Universalising theory		
2.3	Create context-sensitive versions of explanation variables	Deconstruct the core constructs that make up the external theory and modify these to create multiple context-sensitive versions of the theory. Develop a comparative typology to assist with the identification of underlying context-specific mechanisms. Use this analysis to create a more universal theory that is capable of accommodating numerous contexts.
2.4	Replicate theory in new contexts and modify the theory to accommodate context-contingent features	Replicate the theory across multiple empirical contexts, and/or draw on a review of other scholars' findings. Undertake an analysis of the conceptual and factual differences (1.3 & 1.4) and any differences in the effect of the theory, and use this knowledge to modify the theory to accommodate (numerous) context-contingent features.

Part 1: To borrow or not to borrow?

Extending Whetten and colleague's (2009) common-sense test: 'is the selected theory going to function in a roughly equivalent way?', the proposed framework directs researchers to examine and compare the local context with the external theory. First, researchers must consider: was the external theory designed from a universalist or particularist perspective? Although theories that operate more 'particularly' *can* (sometimes) be adapted for new contexts, the exertion involved may not bring about sufficient value to warrant the exercise. Ideally, a good candidate for theory borrowing will have been designed to operate at a fairly broad explanatory level. Lean, with historical ties to 'scientific management', is on the universalist end of the spectrum from a structural (stage of change) perspective; however, the cultural aspects of the theory could be viewed as more particularistic.

Second, it is important to consider whether the external theory and the local context operate on the same level of analysis. For instance, if the theory was developed at the organisational level, but researchers were interested in studying a phenomenon occurring within an organisational unit or department, this may present additional challenges for theory borrowing, and it may be better to abandon the process. Lean, for instance, was originally developed and used as a whole-of-organisation approach to improvement. This raises some pertinent questions about the transferability of Lean to lower levels of analysis.

Third, drawing on the 'contextualities of scientific knowledge' introduced by Virtanen (2013), it is useful to consider and compare a number of the features that define knowledge of local contexts, with the knowledge constructs that influenced the development of the external theory. For the purposes of theory borrowing, it is possible to treat 'framework contextuality' and 'constructivist contextuality' together, and 'referential contextuality' and 'mundane contextuality' together. In the framework developed within this paper, we have termed these, 'conceptual' and 'factual' contextualities, respectively (following Virtanen (2013)).

Regarding conceptual contextuality, it is useful to consider the ontological/ epistemological/ methodological paradigm within which the originator of the theory may have approached the task of theory development. This may not be explicit or easily evident at first; however, persistence may be rewarding, given the vast web of assumptions that underlie these paradigmatic perspectives. Towards this end, it may also be useful to situate the external theory within its broader disciplinary or theoretical school of thought. The

purpose of this exercise is to illuminate areas in which conflict may arise between the borrowed theory (with all of its philosophical and methodological 'baggage') and assumptions operating within the local context, including the assumptions of the researcher who is wishing to borrow theory. For instance, in the case of Lean and the public healthcare context, there is a degree of compatibility between the two, regarding the capacity for Lean to be applied within a 'positivistic' paradigm. Catering to the empiricist tendencies of the medical profession, this aspect of Lean is often strengthened when applied to health care contexts, sometimes by pairing Lean with another related approach, 'Six Sigma' (also derived from the manufacturing industry), which has a significant (positivistic) 'data-driven' aspect (Murphree, Vath & Daigle 2011). However, the tailoring of Lean in this way, may bring about unintended consequences, potentially overshadowing important aspects of the theory that are not as compatible with positivism, for instance, creating a *culture* of continuous improvement.

An attempt to identify factual contextuality is possibly more familiar to researchers than conceptual contextuality. The factual context refers to the 'shopping list' (Pettigrew 1985) of contextual factors that are (sometimes) reported alongside research results: time, place, sector, culture, institution, economic/ political/ social conditions of interest, or other explicit or implicit understandings of the research object. Any glaring discontinuity between the factual contexts of an external theory and the local context to which that theory may be applied, should be treated with caution. For instance, in the case of Lean and health care contexts, there are some distinct similarities as well as differences. Patients are not cars; however, in a hospital environment, they do travel through an organisational process that *could* be compared with a manufacturing process. On the other hand, as argued by Radnor and Osborne (2012) there is a significant difference between a production-logic and a service-logic. There are many examples of factual similarities and differences (and many more within the case example alone). The task for theory borrowers is to identify which factors of difference are so large that they might undermine the transferability of theory between contexts.

Bringing together considerations of particularism and universalism, and comparisons of level of analysis, and conceptual and factual contextualities, provides a good basis with which to decide whether to continue on the path of theory borrowing.

Part 2: Contextualising theory

Researchers from the information systems discipline created a framework and set of guidelines for theory borrowing, based upon the work of Whetten, Felin and King (2009). These (excellent) guidelines were developed and tailored for the field of information systems research. The second part of the framework, presented herein, can be seen as an adaptation and extension of Hong and colleague's work (2014).

Once the decision has been made to borrow a theory from an external context, there are two pathways for contextualisation. A researcher may either tailor the theory to more closely resemble important features or peculiarities of the new (local) context, or the researcher may attempt to modify the original theory to account for multiple contexts. The first path describes a process of theory particularisation, whereas the second, describes a process of theory universalisation.

Two of Whetten, Felin and King's (2009) three approaches to contextualising theory lay down the foundations for the process of theory particularisation. As described in detail above, a researcher can firstly modify a theory to be more context-sensitive, by controlling for context-distinguishing features as they relate to the phenomenon (Y) but not the explanation (X). This tactic for contextualisation is more commonly used in practice than other tactics introduced here. It involves 'add[ing] contextual variables as antecedents of the core construct or dependent variables… allow[ing] the effects of contextual variables to be explained by the underlying theoretical frameworks of general models' (Hong et al. 2014, p. 6). Again, using Lean as a case example, this first tactic to contextualising theory might prompt researchers to consider context modifications based on both the factual and conceptual nature of the local context. From a factual perspective it is useful to draw on the analysis of Lean for health care published by Poksinska (2015). She suggested the following factual modifications to the five Lean principles, for health care contexts (italics have been used to highlight factual modifications, on the basis of contextual variables):

1. 'Specify value: incorporate both the *expertise of healthcare staff* and the *patients' preferences and experiences* in defining value;
2. Identify the patient flow: Understand all the activities required to provide care for patients. Focus not only on finding waste, but also on *how patient experience can be improved*;

3. Create flow: Remove waste to make the activities flow without wait times and implement improvements that make care *more responsive to individual patient preferences and needs*;
4. Establish pull: Understand the variation in patient demand and match the capacity and resources in line with this demand;
5. Strive for perfection: Systematically identify and eliminate waste in patient flows and implement activities that improve *patient experience*.' (Poksinska 2015)

The second tactic for particularising theory, involves incorporating a contextual effect (Z) as a moderator, related to both the phenomenon (Y) and the explanation (X). This is a more complex approach, involving an in-depth explication of the relationships among and between explanatory and contextual variables. This approach is helpful when trying to understand explanatory inconsistencies between studies, and when attempting to enhance the explanatory power of a model applied to specific contexts. Drawing on Lean as a case example, the more in-depth modifications suggested by Radnor and Osborne (2012) are better representations of the action of a moderating variable. For example, in their second proposition they argue that: 'the quality of internal processes is a key influencer of, and contributor to, the quality of external service and their reform only has meaning when this understanding is embedded in any internal reform process' (Radnor & Osborne 2012, p. 280). Here, the authors shed light on an important interaction between the *context* of reform (the level of 'understanding' within 'internal reform process') and the *explanatory* value of Lean as a process to create reform (the 'quality of internal processes' and 'quality of external service'). This proposition demonstrates a discrete moderating variable, arguably required in order to create sustained change using Lean in public health service contexts.

The second path to contextualisation involves modifying theory to be more universal, increasing its applicability to multiple contexts. The first option is broadly conceptual (deductive) and the second, empirical (inductive or abductive). Whetten and colleague's (2009) third tactic (the formulation of context-sensitive versions of the explanation variables) involves deconstructing the core constructs of the theory into contextualised variables. Here, researchers attempt to construct hypothetical comparisons between multiple context settings. The creation of a comparative typology facilitates the identification of context-specific mechanisms. For instance, a useful way to highlight context-sensitivities for the

application of Lean, would be to compare the anticipated effects of Lean's application in a hospital, with a General Practice clinic, and a residential aged care facility. Returning to conceptual and factual contextualities would be a useful exercise in this scenario.

Last, theory can be adapted to accommodate multiple contexts, through a process of empirical replication and subsequent theory modification in response to the identification of context-contingent factors. This 'review of the literature' approach is perhaps the most common amongst those who have sought to modify Lean for health care contexts, although the task is made more difficult by the notoriously variable application of Lean in practice (Andersen & Røvik 2015). It has however, demonstrated itself as a worthwhile tactic with which to approach theory development and modification.

Putting the framework into action: modifying Lean

Using Lean as an example throughout the text has been helpful and has provided concrete illustrations for various points of argument. The collation of these examples and points, however, would not constitute a comprehensive treatment of Lean as a theory, and does not in itself add to the literature on Lean for public health services. Rather, this section attempts to begin this work.

The word 'begin' is used here, as an exhaustive treatment of Lean is not within the scope of this appendix. Additionally, given that such a large volume of empirical work on the use of Lean within public health care contexts has already been undertaken, the example provided here is better seen as a useful reorganisation of knowledge on Lean for health care, (perhaps helpful for 'diagnosing' implementation problems) rather than the achievement of ground-breaking new insights. The worked-through framework here (Table 2) may help to make sense of *why* Lean often fails when implemented within public health care contexts, rather than simply identify *which* factors are the likely culprits for failure.

Table 2 sets out a 'worked example' of the framework in action. In the first part of the framework Lean is considered for its potential 'fit' within a public hospital context. Various differences and similarities are identified between the two, and (for illustrative purposes) the second part of the framework ought to be treated with caution. Only one particularisation strategy is used here to demonstrate the framework, although several strategies could (and should) be used alongside each other, or together (a form of conceptual triangulation, perhaps).

Using the second strategy of theory particularisation, I sought to identify moderating factors, that is, features of the phenomenon (context) as well as the explanation (theory) that may interact to create a new effect. Key information emerging from the first part of the framework helped to identify potential interactions between the phenomenon and the explanation, which in turn facilitated the development of a modified Lean for a generic public hospital context. As a result, the five components of Lean theory were modified to: accommodate a broader definition of 'value', a more flexible approach to the development of lean processes, and the need to nurture 'bottom up' approaches to the creation of pull and continuous improvement cultures.

The modified Lean theory provided here is not final or exhaustive. It is suitably brief to act as a demonstration. Modified theory can continue to be developed by providing further detail in the first part of the framework, by using a number of contextualisation strategies in concert, through the introduction of empirical data, and (ideally) through empirically testing the theory.

Whilst Lean remains a useful example for the purpose of this appendix, future applications of the framework may be more productive for theories that are traversing less-charted territory, for instance, the application of strategic management theory to health sector contexts. Also, the example provided here is 'generic' in the sense that it is not tailored to a specific hospital context (and therefore lacks detail). There are significant differences between various settings within the broad 'public hospital' category, and consistent with this, researchers are advised to adjust the scope of the framework to match the purpose and question of their research – irrespective of whether the purpose is to address research questions that are contextually general or specific in nature. The example provided in Table 2 is nonetheless illustrative, if only as a sketch.

Table L-2. An example of Lean Thinking contextualised for public hospital environments

Part 1. Examine and compare the public hospital context with Lean Thinking (Lean) theory			
Prompting Question		*Consideration*	
1.1	Is the external theory best described as universal or particular?	As a theory, Lean has both universal (structural) and particular (cultural) qualities. The decision to proceed with the contextualisation of Lean would be contingent upon the capacity for Lean implementation to cater to this (cultural) feature of particularisation.	
1.2	Was the external theory originally developed for a level of analysis that corresponds with the local context?	Lean was developed as a whole-of-organisation approach to improvement and continuous improvement. The implementation of Lean at lower levels of analysis (without wider application within the entire organisation) is not advised.	
1.3	What are the key differences between the external theory and local context, regarding conceptual contextualities'?	The structural antecedents of Lean (originally from the 'scientific management' movement) are *somewhat* compatible with the (general) preferences of medical staff to approach research from a positivistic paradigm. This may not be true for other important stakeholders however (i.e. nursing staff, or patients). The cultural (Japanese) and cultural change (continuous improvement) aspects of Lean, on the other hand, may conflict with the hospital context, depending upon the shared values operating within the particular context of interest.	
1.4	What are the key differences between the external theory and local context, regarding factual contextualities?	Lean (Toyota) • Product-focused (cars) • Revenue-focused motivation • Uniform technical complexities • Privately owned • High level of administrative and leadership autonomy • Centralised decision-making • National, cultural and temporal context (Japan 20th Century)	Public hospital • Service-focused (people) • Wellbeing-focused motivation • Diverse technical complexities • Publicly owned • High level of regulation and external control • Professional bureaucracy • National, cultural and temporal context (multiple)
1.5	Based on an overall comparison between the external theory and local context, is the theory likely to operate in an equivalent way in the local context?	There are a number of key differences (alongside similarities) between Lean's originating context and the public hospital context. As a result, the task of theory borrowing will be more complex, and attempts to contextualise theory should proceed with a high level of caution.	
Part 2. Selected approach for contextualising theory			
Selected strategy		*Modified theory*	
Particularising theory			
2.2	Incorporate a context effect for both phenomenon and explanation	Drawing on the above analysis (and adding to Radnor and Osborne (2012)), the following moderating effects should be introduced into the five Lean theory constructs, for application to public hospital contexts: i. Identify value: modify the definition of value to go beyond efficiency (system-level value) to also encompass and prioritise patient outcomes (product-value), as well as patient experience (service-value) and health care practitioner experience (value to the organisational culture). Recognising that these values are intimately interconnected and interdependent will prevent a potentially unhelpful focus on one value over another (see also Radnor and Osborne's Proposition #1 and #2, (p. 280)) ii. Specify the value stream: when mapping the value stream and identifying waste, accommodate the different types of value (outlined above) and anticipate the ways in which these values may interact. Focus on where activities align to serve multiple levels of value. iii. Create flow: it is not sufficient to create a singular or permanent process of flow, rather, it is important to create flow pathways that can accommodate fluctuations (without compromising outcomes) and to support resilience (organisational culture). iv. Pull and continuous improvement: rather than pull mechanisms and continuous improvement being imposed from 'above' the value of both will need to be understood by the professional bureaucracy that functions within the hospital – representing cultural change alongside technical improvement.	

Conclusion

The purpose of this appendix was to address the question: *how* can theories developed in one context (the private sector) be usefully applied to another (the public sector)? A brief survey of the literature demonstrated that this is indeed a question of contemporary relevance to the field of health service management. Theory borrowing occurs (whether explicitly or implicitly) in public policy and academic environments alike, and there appears to be a desire for the practice to continue into the future (Fellows & Liu 2020; Hong et al. 2014; Oswick, Fleming & Hanlon 2011). The problems associated with importing theories to public management contexts seem to have been identified within isolated and retrospective cases; however, there is little explicit discussion within the academic literature of the broader patterns and challenges of theory borrowing as a distinct practice. Further, there is little guidance for those who wish to borrow theory in ways that are sensitive to the peculiarities of public sector contexts.

This Appendix Ias taken steps to address the paucity of research in this area. Through a survey of the existing theory borrowing literature (from management disciplines) a novel framework and decision-support guidelines were developed to assist with future theory borrowing attempts, and to provide a demonstration of this framework in practice. The framework incorporates both decision-making guidance to support the abandonment of theory borrowing where little benefit is likely, as well as several strategies for the contextualisation of theory. The framework offers a new contribution to current dilemmas within the literature, as well as an advancement of the contemporary theory borrowing literature more generally. In closing, the following comments and suggestions for future research are provided.

There are several areas of health services scholarship and practice that this framework may apply. First, the practice of theory borrowing is raised as an *explicit* dilemma for the field of healthcare and health management, helping to recognise the problem as a class or category rather than continuing to treat symptomatic manifestations of the problem as isolated (instances within the health service discipline. Using this insight, health service scholars will be better positioned to make sense of instances in which the application of theory appears not to work in certain contexts, and make informed choices as to whether to continue pursuing the transfer of theory (with guidance), or to abandon the effort due to the fundamental incompatibility of contexts.

Further, the concept and practice of theory borrowing is of central importance to transdisciplinary research. The next step beyond theory borrowing, 'theory-blending' (a form of conceptual blending), as described by Oswick, Fleming and Hanlon (2011), may be an important avenue to help 'pave the way to transdisciplinary research' (Gustafsson et al. 2016).

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